MANITOBA MEDICAL REVIEW

VOL. 29

1949

The Manitoba Medical Review

Vol. 29 JANUARY, 1949 No. 1

CARDIOLOGY

Edited by J. M. McEachern, M.D.

Non-Penetrating Traumatic Heart Lesions

Fred A. Young, M.D.

Lesions of the heart resulting from external violence without penetration of the chest wall are rare. There is, however, considerable difference of opinion as to their frequency. Authors of papers on the subject have gathered reports of many cases proved by autopsy within days or months of the accident in which bruising of the myocardium, pericardial haemorrhage, rupture of valves or rupture of the various chambers of the heart have occurred. Animal experiments have been reported showing similar effects of violence. There are also in the medical literature many reports of cases in which the clinical, electrocardiographic and x-ray evidence indicates damage to the heart so definitely related to an accident that a diagnosis of traumatic lesion was confidently made, although the patient survived.

The effect of trauma may be the initiation of the damage or the aggravation of some defect either obvious or not obvious that previously existed, such as rheumatic or syphilitic or coronary disease.

In the course of several thousand examinations of ex-soldiers referred for medical reports since the First Great War, I kept a rough index of the more interesting cases, and found out of over 600 with heart lesions, thirteen in which I thought there were persisting effects of violence. One other private case is added. It must be understood that my opinion of the origin of the defect was based on histories of the cases, partly recorded, partly obtained from the patient.

Case 1. A blacksmith was kicked in the front of the chest by a mule in 1916. He was able to return to work next day, but from that time always had pain in the heart area when exerting himself, and although there was no heart, lung or bone damage demonstrated, he was refused for draft to the front line. I knew him to have been a very keen willing worker. An aortic murmur found later was diagnosed after a positive Wasserman reaction as due to luetic aortic valve disease. He died twenty-six years after, in 1942. Post-mortem, the aortic and mitral openings were not large enough to pass a pencil through, they were so blocked by masses of organized granulation. The trauma initiated the period of inefficiency, it probably damaged the infected valve.

Case 2. This man was knocked over by a shell explosion, and partially buried for 2½ hours in 1917, and was evacuated as D.A.H. (Deranged Action of the Heart). He had been repeatedly examined at various stages of training before going to France. I had attended his family some years previously, but he had not been sick, and he denied ever having had rheumatism. In 1918, one year later—V.D.H. was diagnosed. The heart was enlarged, he had praecordial pain on bending, extending up the left side of the neck, moderate dyspnoea on ascending stairs. In 1919 mitral stenosis was diagnosed with a Graham-Steel diastolic murmur, found by Dr. Burridge; he had pain at the heart area and shortness of breath. He died eighteen years later, and post-mortem masses of granulation about the mitral valve region made it impossible to trace any previous traumatic lesion.

The close association of violence and the onset of heart disease in a healthy man without a history of previous rheumatism cannot be ignored. By the time the valve lesion was detected no reference to trauma was likely, and the heart defect was accepted as probably rheumatic.

Case 3. This soldier, age 23, was blown over and stunned for a short time by a shell explosion in 1916. After his recovery he felt miserable on light duty, and was sent to hospital. At hospital he was dizzy, and short of breath, and had a choking sensation at night. The heart was enlarged, and systolic and diastolic murmurs were heard. At the clavicle the murmur had a blowing quality. The officer at the hospital thought the symptoms, felt after the casualty, were probably due to rheumatic fever. He had formerly been a long distance runner, and was very carefully examined for draft to the front. In 1918 there was a loud systolic murmur of long duration at the apex, and in the axilla, and at the back of the chest. It increased in intensity as it was followed up the sternum. No artery sound at the groin, no swelling of the feet, and the response to exercise was good. A diagnosis of aortic valve disease was made. Four years after the battle incident, he was unable to do hard work. Pulse 80, Bl. Pr. 106/85. Heart: no enlargement, thrill and rough systolic murmur over the whole heart area, the murmur was audible left of the thoracic spine.

The Wasserman reaction was negative, and x-ray negative. I suggested a ruptured interventrical septum, but the recorded diagnosis was aortic stenosis.

In 1925, the pulse was 88. Bl. Pr. 95/75. There was a fine thrill felt over the heart and a rough systolic murmur heard up the sides of the neck to the jaw. He was working fairly hard but felt tired. He died suddenly in 1926 while boarding a street car, no autopsy was made.

Case 4. In 1916 this man was twice buried by a shell explosion, and was knocked unconscious. He had been twelve months on full duty, but about four months before the casualty had felt a little chest pain, and some shortness of breath although he had been frequently examined, no heart disease had been found. Two months after the shell incident his W.R. was negative, but there was apparently some suspicion of syphilis. A year afterward, the heart was enlarged and a loud systolic murmur at the apex and an aortic regurgitant murmur were evident with Corrigan pulse, he was still having pain at the heart, and had just recently been able to lie down flat. In 1925 he had acute failure with fibrillation of the auricle. A loud systolic murmur was heard at the 4th and 5th spaces left of the sternum, and the heart shadow was much enlarged, the W.R. was 3 plus. A month later, July 1st, Dr. Nicholson found systolic, diastolic and presystolic murmurs and a thrill; the liver was enlarged also. He died in November, 1925.

The intensity of the systolic murmur and onset of symptoms soon after the trauma, point to decided aggravation of the underlying syphilitic defect by the shell concussion.

Case 5. This was a British flying officer who suffered a severe crash concussion with fractures in 1918. No heart lesion was reported till 1932, when I found a presystolic murmur at the apex, and a whistling systolic murmur at the apex transmitted well to the left. A loud systolic murmur was heard over the great vessels, and a soft distant diastolic at the mid sternum; there was no irregularity, no enlargement of the heart. Pulse 80. Bl. Pr. 110/70. No distress on exertion. He had dizziness and some loss of concentration, and headache, with some vaso motor instability in hands and feet. In 1934 a to and fro murmur at apex and sternum was reported. In 1940 and 1941 there was a report of enlargement of the heart, and a to and fro systolic murmur transmitted to the left axilla, and a marked to and fro murmur along the left sternal border. The murmur was audible below the left scapula. He slept badly, was emaciated, and dyspnoeaic on exertion with irregularity and rapidity of the heart action. He denied rheumatism, and the W.R. was negative.

The finding of a heart lesion fourteen years after an accident does not show a relationship, but we have a loud murmur without symptoms, in 1932, which must have existed a long time, and could not have existed before enlistment without detection on examination. The serious injury from the crash may have absorbed the surgeon's attention, and the report called for in 1919 was for neurasthenic symptoms, and repaired fractures at the request of the British Ministry of Pensions, and no mention was made of the heart or other physiological systems.

The satisfactory exercise tolerance in 1932 in spite of pronounced murmurs at the apex and base of the heart raise a suspicion of a lesion other than rheumatic, such as a lacerated valve with the myocardium remaining healthy. The diagnosis, however, must in such a case be left as mitral and aortic valve disease, probably rheumatic.

Case 6. Age 58, he fell twelve feet alighting on his heels, and doubling up so that he felt pain in the left side of his chest. The fall was in 1942, during the shelling in London. In hospital he was dizzy, and had pain near the left nipple, and a cough with some severe spasms of coughing, a heart murmur was found. In 1944, two years later, I found a slight enlargement of the heart, no irregularity, no thrill, a slight rubbing quality at the initiation of the 1st sound at the apex, a slight rough systolic, and a very pronounced diastolic murmur extended across the heart from the left parasternal line to the left anterior axillary line. The diastolic murmur diminished toward the base of the heart, but a coarse systolic murmur persisted as far as the 1st and 2nd spaces at the right of the sternum. Bl. Pr. 138/68 (not at all suggestive of aortic insufficiency). X-ray showed slight enlargement of the left ventricle with elongation of the great vessels, and a calcareous plaque in the bulb of the aorta. Barium in the oesophagus did not show any abnormal contour of the heart. E.C.G. showed T. diphasic in Leads 1 and 2. Depressed R.S.T. in Leads 1 and 2. Abnormal T. in Lead 4. Wasserman reaction negative in 1947. He had never suffered from any illness in his life except malaria in Java, 1913. He had been a furniture mover before the war in 1939, but on his return to the old job had to quit after two weeks trial on account of breathlessness; he could carry on at lighter work for a full day. In 1948 the diagnosis was aortic stenosis with calcifying arteriosclerosis. He had pain in the chest and breathlessness. E.C.G. showed left ventricular strain.

My explanation of the murmurs was damage to an atheromatous aortic ring by sudden pressure of the jack-knifed chest, during early diastole, when the aorta was full.

One of Leinoff's cases should be compared with this one. His case No. 15, was a man who fell, alighting on his heels and breaking the oscalcis. In bed he had heart pain, dizziness and weakness with shortness of breath. On his first visit to the doctor he climbed four flights of stairs, and had what was apparently a coronary attack. He was 61 years of age, and had arteriosclerosis. It would appear that this coronary attack was greatly influenced by his evident cardiac disturbance immediately following the accident.

Case 7. He was buried by a shell explosion at Vimy in 1917, two years after enlistment. He had felt well before that except for a short attack of rheumatism in 1916. After the casualty he did no more duty, he had praecordial pain and slight fatigue on exertion. He was recorded as a case of D.A.H. with a soft systolic murmur at the apex, which varied in intensity. In 1918 he had another attack of rheumatism and in 1919 had pains in the joints. Since then he has had a mitral regurgitant murmur and has been in and out of hospital frequently with cardiac and arthritic symptoms. This rheumatic cardiac disease was promptly aggravated by violence.

Case 8. This man, age 31, was blown up by a shell explosion in May, 1917. He had always been very healthy, and had served two years in the army. As an attack of trench fever started almost immediately after the shelling he was evacuated. He was recorded as D.A.H. but this was changed to V.D.H. within a month. There was a slight murmur and he was short of breath and pressure near the left nipple was painful. At the end of six months he had praecordial pain, a fast pulse, some enlargement of the heart and a faint systolic murmur limited to the apex. In 1925 the signs and symptoms were similar. In 1930 the systolic murmur was evident from the base to the apex of the heart. W.R. x-ray, E.C.G. all negative.

In 1940 he was short of breath, but able to do light work. The heart impulse was heaving and there was marked impulse at the left side of the neck with exertion, a thrill at the apex, and a systolic murmur limited to the apical area at rest but transmitted to the axillary line with exercise. With systole there was a slight scraping murmur at the pulmonary area.

There is here cardiac inefficiency starting after trauma, not advancing to any great extent, without very pronounced signs, but enough to suspect some damage at the mitral ring.

Case 9. A forty-one year old soldier was buried by a shell explosion in 1916. After this he had an irregular heart action, and marked loss of endurance, no arteriosclerosis was found. In 1919 Dr. Burridge found the heart slightly enlarged, and auricular fibrillation, no murmur was heard. In 1920 the irregularity was pronounced, he felt shaky, and had occasional swelling of the face and feet, he was dizzy when climbing stairs as a letter carrier. E.C.G. showed fibrillation. In 1944, after 28 years, aged 68, when working on a load of manure, he became dizzy and fell. A systolic murmur was found over the heart area, and the auricle was still fibrillating.

Case 10. At age 33, he was completely buried by a shell explosion in 1918. He was evacuated as D.A.H. and has been easily exhausted since. He had previously felt some palpitation after heavy training. In 1934, his pulse was 104, and he was easily exhausted, but had no signs of organic heart disease otherwise, and he had never had rheumatism. He was evidently a sensible man without any indication of neurosis. It was only while searching for some original cause for his loss of endurance that he mentioned the fact that he had been badly crushed. This is not an instance of serious trauma, but illustrates the possible aggravation of a defective heart efficiency by violence.

Case 11. This man enlisted in 1939, aged 37. At Dieppe in 1942, he was blown against a stone wall by a bomb. He was unconscious for about two minutes, but was able to get back to the beach. He was diagnosed as psychoneurotic, with headache and sleeplessness. After eleven days leave he returned to duty, but on doubling up a hill he felt pain in the heart area. His heart pounded all night, and he reported to the M.O. He has continued to be nervous and fatigued, and has heart pain when hurrying. In 1943 P. 108. Bl. Pr. 148/96. There was a slight systolic murmur at the 2nd space left of sternum. The blood W.R. was positive, but he denied infection. All cerebro-spinal tests were negative. X-ray of the chest was negative. E.C.G. sinus tachycardia.

Dr. Mathers opinion before the cerebro-spinal fluid examination was cerebro-spinal syphilis. This man was in the attack on Dieppe, 1942, and must have been very carefully checked by the medical and combatant officers. In 1945 he still exhibited cardiac inefficiency. As his tachycardia and general loss of endurance dated from just after the bomb shock, it seems probable that he suffered a contusion of the heart, recovery from which was delayed by a route march with heavy equipment within two weeks of the casualty. The syphilitic infection was doubtful.

Case 12. He enlisted in 1940, age 34. In 1941 he was struck in the left side of the lower thoracic area by an army truck, and was off duty six weeks. On returning to duty he had attacks of dyspnoea and palpitation with praecordial pain. Such attacks gradually increased in frequency for nine

months, occurring about twice a week, and lasting from a few minutes to twelve hours. The E.C.G. showed paroxysmal tachycardia. The attacks have persisted when his work is moderately strenuous, in spite of the use of quinidine and digitalis. He had been a healthy man previously.

Case 13. Several years ago I saw with Dr. Gardner a railway navvy who was struck across the front of the chest by a railway rail when he slipped while he was helping to move it. While in hospital a day or two after the accident, he felt faint, and the interne was called. The doctor found his pulse rate 12 to the minute. No E.C.G. was then available, but the incident appeared to be definitely a spell of heart block. His pulse was approximately normal next day, and there were no other signs of heart disease, but he was very breathless and had pain in the chest for three weeks. For a year after he was unable to move quickly or walk up stairs without dyspnoea. During the year he developed arthritis of the hands and feet. He did not speak English well, and the past history was difficult to obtain, but relatives said he had had rheumatism in early life in his own country. This was block, probably sino-auricular, related to the trauma in a case of old rheumatic heart.

Case 14. A young soldier, driving a loaded truck in Sicily in 1943, four years after enlistment, fell with his truck forty feet off a bridge embankment. He was found unconscious under part of the load with a lacerated scalp.

A leaky valve (systolic murmur) and enlargement of the heart were found soon after. He was not conscious of heart trouble, but was short of breath, and was evacuated. He had had scarlet fever, age five, but no rheumatism. There was some incident of epigastric discomfort and breathlessness during training, variously described in the history, which he stated to me, was a vomiting attack after a greasy meal. In April, 1944, a loud systolic murmur obliterated the first sound, the heart was enlarged, the impulse diffuse and forceful. Bl. Pr. 118/66. E.C.G. suggested myocardial damage. In July, 1944, he had sudden praecordial pain lasting three minutes. E.C.G. showed depressed R.S.T. Elevated R.S.T.4, a high T.4 and diphasic P.4. In 1946 the heart was fibrillating and there was definite mitral stenosis, with gross enlargement of the whole heart. He died in January, 1947, and post-mortem the mitral valve was sclerosed and the opening very narrow. The myocardium showed minimal fibrosis, only. Evidence of congestive failure was the only other important finding. This was considered to be mitral stenosis from rheumatism, by the pathologist; but the relationship of the accident to symptoms and the marked valvular sclerosis in so short a time is suggestive of damage by trauma.

Barber and Osborn report a case very comparable to this. A soldier, thirty-three years of age, previously quite healthy and athletic, was blown up and buried by a shell explosion. He was unconscious for a few days, but in hospital was breathless, and his heart impulse was heaving and irregular. There was no external bruising. He improved slowly and even five years after the casualty he had symptoms of heart failure with some oedema and cyanosis. The heart was irregular, there was a mitral systolic murmur and mid-diastolic rumble near the apex, the 2nd aortic sound was accentuated and there was a little cardiac enlargement. The W.R. was negative. A diagnosis of ruptured mitral valve had been made. After seven years out of hospital he could walk a mile or two slowly. The apex beat was just outside the nipple line and regular. There was a definite thrill and presystolic bruit. He died of lobar pneumonia, twenty-two years after the injury. Post-mortem, there were no pericardial adhesions but there was a whitish scar at the base of the left ventricle which could have resulted from the old trauma though this was not convincing. It was, however, in line with the calcified parts of the mitral valve, and a calcified lesion on the interventricular septum. There was mitral stenosis not easily distinguishable from that due to rheumatic fever. The anterior cusp was 1 c.m. thick and the posterior ½ c.m. thick. The left auricle was much dilated and the left ventricle was small. On the septum was a calcified projection. Osborn (the pathologist) states that it is common to find sclerosis and calcification of the mitral valve extending to the aortic opening in mitral stenosis, but the septal lesion in this case was too isolated to fit into the ordinary distribution, and concluded that in this specimen there had probably been a haematoma in the wall of the ventricle extending to the septum, and bases of the valve; for, he states, it is evident that trauma without infection can produce mitral stenosis though infection tends to follow and aggravate it. White, on the other hand, states that trauma never causes stenosis. Possibly he means never immediately.

We have all had to treat patients with some chest injury or severe jarring that may have caused a concussion of the thoracic viscera, but I am sure very few of us have diagnosed a definite heart lesion in such cases unless a heart murmur or an irregularity of auricular fibrillation type has been evident soon after the accident.

Lee, Ussher and Houck, in an article on a case of heart damage from the elbow of a football comrade quotes White as stating that in 7,600 autopsies at the Massachusetts General, no case of cardiac trauma was recorded, and quotes Sanders as stating that in combined records of Memphis Hospitals

no case of heart contusion was entered in 326,500 admissions.

The cases I have described indicate how diffident one must be about a decision in such situations. The instances where heart damage is likely to be part of the injury will probably be handled as surgical, and features of the case that point to cardiac disorder; praecordial pain, dyspnoea, fast pulse, are generally accepted as part of the bruising and shock effects.

Many case reports are scattered through the literature, but it is only after reading the articles by authors who have gathered the reports together and have carried out experimental investigation with animals, and others who have studied the electrocardiographs at frequent intervals after the accidents that the liability of overlooking an organic or functional lesion of the heart is appreciated. Allbutt was deeply impressed with the neglect of heart trauma. Schlomka, in Germany, and Bright and Beck, in America, have dealt with the subject very thoroughly; Barber, in England, has written convincingly about the less obvious cases. For a carefully considered discussion of the work and opinions of the various authors and a record of their own views, White and Glenby's chapter in "Trauma and Disease," by Brahdy and Kahn, and Stern's "Trauma in Internal Disease, 1945," should be read. Leinoff has reported eighteen cases in one paper on "Coronary Thrombosis in Industry," and deals with electrocardiographic changes particularly, showing the tendency to make a diagnosis of coronary occlusion and infarction where damage from trauma may be the real lesion. Sigler more recently has discussed the electrocardiographic proof of damage in a series of accidents of fairly pronounced severity, but not especially related to the chest, in order to estimate the proportion in whom the heart was affected. Warburg gives an analyses of 202 cases in a monograph which I have not seen, but which is spoken of as classical. Spicer in "Trauma and Internal Disease," gives eighty-one cases from the literature.

One of the more common examples of injury to the chest that might be expected to affect the heart is the jamming of the chest by the steering wheel or its post in a collision of motor cars. Here we have the body violently thrown forward against the fixture, so that the heart area bears the brunt of the impact, or it might be that the post pins the driver against the back of the seat. An example of this is given by Bright and Beck:

A man 63 years old had his chest crushed against a steering wheel. Post-mortem, a rupture of the wall of the left ventricle was found at the site of a bruise of the myocardium, which burst while he was laughing, two weeks after the accident.

Another example from Leinoff is of a man, age 48, jammed by a steering wheel. He was unconscious for a short period with pain at the sternum on recovery, tachycardia and breathlessness. Later he had pain in the chest which was worse on moving about or coughing, headaches and dizziness. He had been perfectly healthy. After thirteen days, weakness was pronounced, heart pain and breathlessness on exertion persisted. The E.C.G. showed serious progressive myocardial changes. He eventually recovered.

One of Sigler's cases, a physician, had similar symptoms, but little shock. This man, aged 46, had ribs broken. He was able to leave the hospital in ten days, with heart sounds normal. He had an E.C.G. about 1½ years previously, which was normal except for some left deviation. Six days after the accident the T. was lowered in all leads and normal seven weeks after the accident. Three weeks after the accident a loud systolic murmur was heard over the whole heart and to the right clavicle, loudest at the second left space. Pulse 96. Three years later he was continuing his medical practice with little discomfort, his heart was enlarged. This lesion was diagnosed a rupture of the interventricular septum.

Cases detailed in the literature were of patients hurt in various ways, crushed under a car, or between two cars or falling against a solid obstacle or struck by a falling box or other heavy object, one was struck by a golf ball, another had legs and abdomen so compressed by a cave in of sand that the hydrostatic pressure of the blood burst the heart.

The intensity of the symptoms and signs in cases which survived were generally very decided. If they had not been so, the diagnoses would have been too doubtful to serve as examples. On the whole they were similar to those found in a case of coronary thrombosis, with the addition of murmurs when a valve was ruptured, and irregularity if fibrillation was induced. Distinct evidence of a disordered heart function was found as apart from the pains and disablement of limbs and brain and shock.

An average history in contusion of the heart is: a short period of unconsciousness, with decided pain over the heart, breathlessness and often distressing dyspnoea, tachycardia and weakness. The heart sounds may be weak or muffled. Very often these symptoms subside, but return intensely about four to six hours later, with a sensation of collapse. After one to four weeks of rest the patient may be fairly well but still have pain at the heart, shortness of breath on exertion and a general feeling of weakness. During the next two to six months he may be unable to do ordinary work. There may be a slight systolic murmur at the apex and pain running from the sternum

toward the shoulder may occur. On the other hand a badly contused area may rupture within ten days of the accident.

The picture varies from case to case according to the extent of the damage, and the preceding soundness of the heart. A contusion of the myocardium may be accompanied by more or less haemorrhage in the muscle or in the pericardial cavity, or laceration of the heart muscle or endocardium. There may have been an old rheumatic carditis or a coronary sclerosis.

The features here given fit in well with an attack of coronary occlusion and infarct of the myocardium. Coronary cases, however, do not usually have the distress continue after the first two or three days and are not dyspnoeic, largely of course because the doctor usually makes a serious diagnosis and puts him to bed. The lorry driver who has a block of stone slip and hit him on the chest is told to rest or take it easy until the soreness of the bruise subsides.

Thirty-five years or even twenty-five years ago the coronary case would often be told he had an acute attack of indigestion, and would carry on feeling unfit for much work till he was over the period of repair, or had another attack. The traumatic heart case is still in much the same position.

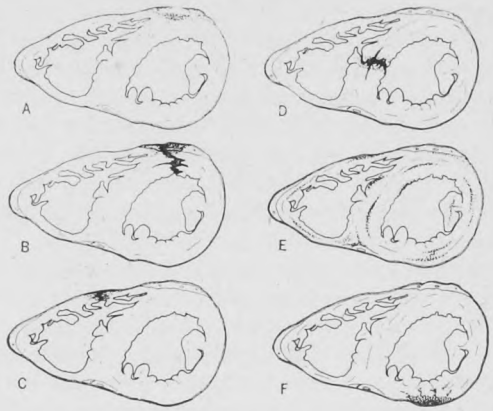
When a trauma causes paroxysmal tachycardia or auricular fibrillation (if the pulse rate is controlled by digitalis) in a previously healthy heart, that heart will usually maintain its power for many years because the myocardium may have escaped pronounced damage. In general practice, according to White, one out of twenty auricular fibrillation cases have healthy myocardiums.

The various authors referred to have shown by illustrative cases the fact that the heart may be damaged by trauma without death ensuing, and our coroners have seen cases of death from violence where bruising of the heart was found at autopsy apart from the fatal injuries.

Bright and Beck produced contusion of the exposed hearts of some animals by blows with a heavy instrument, and injected several c.c's of blood into the ventricular wall and septum in others, and after closing the chest observed the effects for months or until the animal died. The animals reacted much as did patients suffering from what was suspected as heart trauma.

Schlomka's experiments were tests by blows on the chest wall varying in intensity. Effects observed were haemorrhages into the heart muscle, or under the endocardium, or epicardium, in the bundle of His or at the bases of the valves, and in the interventricular septum.

A diagram in Moritz's Pathology of Trauma illustrates such haemorrhages, some seen post-mortem in human subjects, some in experiments.



Diagrammatic representation of various types of cardiac injury which may be caused by blunt impact against the thorax without fracture of the ribs or sternum. Each diagram represents a transverse section through the ventricles and in each the uppermost line of the drawing represents the epicardium over the anterior surface. All of the lesions depicted with the exception of C and D have been observed by the author in human hearts. The lesions depicted in C and D have been observed in experimental animals. (Moritz and Atkins, courtesy of Arch. Path.)

Cardiac contusion by the broken sternal end of a rib. The rib did not penetrate the pericardial sac but nevertheless produced a deep circular bruise to the left of the interventricular septum. Death occurred from heart failure on the tenth day after injury. (Moritz Pathology of Trauma, courtesy of Lea and Febiger.)

In Schlomka's animals only 1.5% had tears in the heart muscle. In seven out of eight which died minutes or days after the violence there was no structural damage of the heart. In these latter he suggests as an explanation of the death that a coronary arterial spasm was induced. He thought it might occur with or without muscle damage. The E.C.G. showed various disorders of rhythm with changes in the Q.R.S. and T. waves very similar to those found in coronary disease. The x-ray showed acute dilatation of the heart when the prostration was pronounced, the arterial pressure fell and the venous pressure rose, as if the force of the heart had decreased, rather than as part of a surgical shock. He termed this excessive disorder of the heart "commotio cordis."

Bright and Beck found a surprising number of animals recover, even when three months after the trauma, considerable damage was discovered post-mortem. None of the contused areas had ruptured, but the animals had been kept quiet. Moritz thinks that a healed contusion does not leave much disability, the haemotoma organizes or absorbs and the lesion follows much the same course as an infarct.

With persisting myocardial weakness there is a condition resembling the senile heart. It is a rather indefinite term, but represents the state of the patient.

In their analysis of 168 cases of heart damage by non-penetrating injury Bright and Beck found only 7.1% who had survived. In their experiments on animals, however, they found such a large proportion of survivals that they were convinced that in practice there must be a great many cases not recognized. Barber holds the same opinion.

Sigler investigated the probability of heart damage in 42 cases of severe accident to men free from heart symptoms before the injury. Examining them soon after the accident and later, he found clinical or electrocardiographic evidence of cardiac damage in 76.2%. Seventeen of them were not directly struck on the chest, the crushing or jarring having been transmitted from other parts of the body.

More discussion of ruptured hearts, coronary damage, pericardial haemorrhage, ruptured valves or the relationship of the traumatic effects to underlying rheumatism, syphilis or sclerotic changes, would extend this paper too far for this occasion. Reference to the compensation angle of the subject has to be left out in spite of its interest and importance. Kahn and Kahn have dealt with compensation in this field in the "Annals of Internal Medicine, 1929."

For many years attention was intensely focussed on the rheumatic heart lesion. Traumatic effects, which had been discussed seriously, but pessimistically, for centuries before, were not given much study. Surgery has opened up the subject dramatically in more recent years and now the electrocardiograph supplies a technical means of supporting the clinical elucidation of the problems offered in practice. The recognition by the surgeons, to whose hands the bulk of the cases fall, of the liability of traumatic heart damage being associated with accidents, and their particular care to note the various items of the history of each case, would ensure much better knowledge of this important medical subject. Hillsman found it very difficult to decide when the heart was penetrated, in cases reaching his surgical unit, without exploration.

It is not only the surgical side that calls for sharper observation of the heart. The clinician who has not traced a clear explanation of a heart disease may find trauma the key in some instances.

Summary

The synopses of fourteen cases of heart defects caused or aggravated by non-penetrating injuries are presented.

They indicate that damage to the heart occurs much more frequently than is usually recognized and recorded. Such damage, however, must still be regarded as occurring rarely in comparison with the number of accidents.

References

Leinoff, H. D., Arch. Int. Med., 70, p. 33, 1942.
Barber, H. and Osborn, G. R., Guy's Hospital Reports, p. 510, 1937.
Barber, H., B.M.J., p. 520, Oct., 1940.
Sigler, L. H., Am. Heart Jour., 30, p. 459, 1945.
Bright, E. F. and Beck, C. S., Am. Heart Jour., 10, p. 293, 1934-5.
Schlomka, G., Quoted by White and Glenby in Trauma and Disease by Brahdy & Kahn.
Moritz, A. R., Pathology of Trauma.
Lee, Ussher and Houck, Am. Jour. Med. Sc., 205-6, p. 722, 1943.
Kahn, M. H. and Kahn, S., Ann. Int. Med., 2, 1013, 1929.
Allbutt, Sir C., System of Medicine, by Allbutt & Rolleston, Vol. VI, p. 424, 1909.
White, P. D. and Glenby, R. E., in Trauma and Disease, by Brahdy & Kahn, p. 26, 1941.
Warburg, E., Subacute and Chronic Pericardial and Myocardial Lesions due to Non-penetrating Traumatic Injuries. Oxford University Press, 1938.
Spicer, F. W., Trauma and Internal Diseases, 1939.
Hillsman, J. A. B., Transactions of The American Association for the Surgery of Trauma, p. 305, 1946.
Stern, R. A., Trauma in Internal Disease, 1945.

MEDICINE

Treatment of Early Acquired Syphilis

(Under 4 Years Duration)

K. J. Backman, M.D.
Division V.D. Control

The status of penicillin in the treatment of early syphilis is still in the experimental stages. Penicillin therapy is, nevertheless, the treatment of choice on both sides of the Atlantic, either alone, or in combination with arsenicals and bismuth. In one type of syphilis, at least, its effectiveness has been proven, i.e., it is almost 100% effective in the prevention of pre-natal (congenital) syphilis, at least up to the eighth month of pregnancy. And for this purpose, at any rate, arsenicals and bismuth, as supplemental therapy, are unnecessary and undesirable.

Some 1,000 cases of early syphilis, Manitoba residents, treated with penicillin while in the Armed Services, or at the Provincial Clinic, have had post treatment follow up for various periods of time up to four years. I have seen their records from time to time, as well as a majority of the patients. There has been no marked difference in the failure rate from the various schedules used.

In 1944 patients in the Armed Services received 2.4 million units of aqueous penicillin alone in 7½ days. Early in 1945, five mapharsen and three bismuth injections were added, and that has remained the procedure until recently.

At the Provincial Clinic 5 to 20 mapharsen and 3 to 10 bismuth injections have always been combined with the penicillin course for early syphilis. The total dosage of the aqueous solution at first 2.4 million units in 7½ days was increased to 4.8 million units in 8 days in the summer of 1947. Penicillin in peanut oil and beeswax (P.O.B.) has been employed for approximately one and one-half years in single dosage of 600,000 units daily, omitting Sundays and holidays, total dosage 6 million units, total number of injections ten.

I believe the ambulatory method using P.O.B. has given results at least as good as any. I believe that penicillin, at least when it is combined with a few arsenicals and bismuth, give end results, as satisfactory as with the best schedules of chemotherapy formerly employed in co-operative patients. Defaulters from penicillin treatment are almost nil, and defaulters from post-treatment observation have been greatly reduced, though they are still too numerous.

Furthermore, penicillin is innocuous whereas arsenicals are toxic, although hazards are very slight if mapharsen is used, and administered only twice a week.

As stated in the B.J. of V.D., June, 1948, the general procedure in most British clinics, and the Army and Royal Air Force, is to give a total of 4 million units of penicillin in ten days combined with ten weekly injections of neoarsphenamine and bismuth. The failure rate is probably in the region of 4% to 7% at 12 months, which compares favorably with that of 15% at the same period for patients treated with penicillin alone. Comparing P.O.B. with aqueous penicillin, it is further stated: "A greater number of failures were noted in patients receiving aqueous penicillin."

Dr. E. Moore says, "Some forty thousand records of patients treated with penicillin in aqueous solution for early syphilis, have been subjected to statistical analysis by a syphilis study group with Dr. Earl Moore at its head. The material indicates that the total optimal dose is somewhere between 1.2 and 4.8 million units, that the total duration of treatment is somewhere between 4 and 15 days, and it doesn't make much difference whether it is 4 days or 15 days, that the interval between the injections, within the limits of 2 hours to 6 hours, is a matter of comparatively no moment."

The subcommittee on Venereal diseases, American National Research Council and the Syphilis Study section of the American National Institute of Health, suggest the following as of April, 1948.

"The product should always be penicillin G. If given in aqueous solution the single dose be 50,000 to 100,000 units, that the total dose be between 4.8 and 6 million units, that the intervals between injections be 2 or 3 hours, and the total duration of treatment be 4 to 8 days. If the drug is used in an absorption delaying vehicle on an ambulatory basis, the single dose should be 600,000 units, the total dose 6 million units, the interval between injections 24 hours, and the duration of treatment ten days."

"The committees also felt that there was no reason, as an initial course of treatment in early syphilis to combine arsenic and bismuth, with penicillin. On the other hand, in patients who have failed as a result of an original course of penicillin, a second course may profitably be combined with arsenic and bismuth, and if so in a minimum dose of 600 milligrams of oxophenarsine hydrochloride (mapharsen) and 2400 milligrams of bismuth, total duration of treatment 8 weeks, equivalent to 10 x mapharsen, .06 twice a week for 5 weeks, and 12 x bismuth salicylate, 1½ c.c. every 5 days for 8 weeks."

I assume the arsenical dosage chosen was because the effectiveness of mapharsen rises rapidly with the first 600 mgms, and can be shown

graphically as a vertical line. Any additional arsenicals are comparatively less effective, and the graph shows an extended line leveling off. Dr. Moore states "The synergistic action of penicillin with arsenicals and bismuth apparently does not hold true to the same extent in man as it does in animals." It has been shown both in animal and man that the curative dose of arsenicals in syphilis is essentially the same whether the drug is administered in a single massive injection, in 10 to 20 large injections administered over a period of days, or in small injections administered over a period of months. When given in divided doses the failure rate increases when patients lapse from regular treatments, for various periods of time. Cases with a toxic reaction from arsenicals, so serious as to endanger life, should promptly be given British Anti-Lewisite, in single dosage of 3 mg per kilo, or 1.8 c.c. of 10% B.A.L. for average adults every 4 hours, 6 times a day for 2 days, 4 times on the third day and then once or twice daily for 10 days or until complete recovery. B.A.L. for this purpose may be obtained free from the Provincial Department of Health and Public Welfare.

Dr. E. W. Thomas, of Bellevue Hospital, New York, states "best results in the treatment of early syphilis are obtained with injections of P.O.B. 300,000 to 600,000 units daily for 15 days."

Procaine penicillin in oil and 2% aluminum monostearate has only been used since last spring. It is, therefore, impossible, as yet to properly evaluate its effectiveness in syphilis. Dr. Moore thinks a course of this preparation will cure about 90% of early syphilis. Suggested schedule is injections of 600,000 units two or three times a week for 2 to 3 weeks. Commercial houses are going all out, in the production of Procaine penicillin and discontinuing the production of P.O.B.

With the institution of penicillin treatment, in early syphilis, the degree of positivity of the blood test declines. A considerable period of time may elapse before the serologic test shows a notable fall in titer. It may or may not show a slight increase in positivity at the start, but then, week by week it declines, until by the third to sixth month the vast majority become persistently negative. If a serologic test shows that the titer continues to fall, the serologic progress is satisfactory, and no treatment is indicated. A series of serologic tests provides a base line, against which later, to measure the post-treatment status of the patient. Occasionally the serologic test will not become negative for a year or more. Without good quantitative laboratory control, one can not evaluate the results of therapy adequately. Due to the Manitoba Provincial Laboratory not having a sufficient number of qualified technicians, only a limited number of quantitative tests have been done, and then only on request. It has been customary where only qualitative tests are available, to re-treat when the serologic test is strongly positive three months after penicillin therapy.

The prolonged presence of small amounts of reagin in the blood for many months after treatment, does not necessarily mean failure, because, re-treatment does not hasten the reversal of such positive tests to negative, and in the course of time the S.T.S. becomes negative without further therapy, unless a relapse occurs. The rule is, in the absence of relapse, to re-treat a patient if the Wassermann qualitative test is not negative at the end of one year. Our Wassermanns are highly specific and not so highly sensitive. Using quantitative tests the rule is to treat at the end of one year if the test is positive in eight dilution units or higher. For the prevention of congenital syphilis, no chance should be taken. Therefore, re-treatment of the mother should be given if serology does not decline significantly within three months following treatment of early syphilis. This is unnecessary in late syphilis. Statistics indicate aqueous solutions are slightly preferable to P.O.B. for the prevention of congenital syphilis.

Some syphilis patients who have had adequate treatment may retain a positive blood test for years, or for life, just as a patient who has had typhoid fever, may, for many years show a positive agglutination test. This is particularly true of patients who have had syphilis a year, or more, before treatment is commenced.

Relapse is detected either by the appearance of new early lesions or signs, or by marked sustained rises in titer from previous levels, or the C.S.F. develops abnormalities. Clinical relapse is usually preceded by serologic relapse. The greatest danger of relapse is between the fourth and ninth month following treatment. There is a relapsing type of early syphilis amounting to 4% regarding which no rules or predictions can be formulated. Relapse and re-infection can often not be differentiated. In any case, such patients should be re-treated. If abnormalities are discovered in the C.S.F. the case is treated as for neurosyphilis. Resistant blood tests are not uncommonly due to central nervous system involvement. There are fewer central nervous system involvements following penicillin therapy than with conventional chemotherapy. About 70% of relapsers become negative with a second course of penicillin. The few remaining require a third course, and rarely a fourth. There has not developed any clear cut evidence of penicillin resistance in early syphilis, leaving aside the few Wassermann fast cases already mentioned.

During the first year the blood serologic test should be done once a month. Following treatment for primary and secondary syphilis a spinal

fluid test is done in six months, but for infections of longer duration the C.S.F. test is done as part of the initial diagnostic procedure prior to, or at the beginning of treatment.

During the second year, assuming progress to have been satisfactory, blood tests should be done every three months and a spinal fluid examination repeated at the end of 2 years. No further spinal test is necessary, unless there is evidence of a clinical or blood serologic relapse, in which case a spinal test is done immediately. Beginning in the third year blood tests are taken every six months, coupled with an annual physical examination until at least 5 years have elapsed from completion of therapy.

One must not be misled by minor fluctuations in titer, which may be caused by day-to-day variations in laboratory performance, nor by a temporary rise in titer due to some intercurrent disease. A blood serologic relapse should be confirmed by repeating the test. Serologic specimen taken during or following treatment should be labelled—treated case.

A Few Words on Infantile Congenital Syphilis

10% to 15% of infants still die from congenital syphilis in spite of penicillin treatment, and few if any of the fatalities are attributed to a Herxheimer reaction, which reaction is always feared in debilitated infants. Of the survivors satisfactory results approach 100% if penicillin is started before the third month of age. The later penicillin is given the slower the serologic response, though clinical improvement is rapid.

The recommended total dosage is 100,000 to 400,000 units per kilo of body weight, in 10 to 15 days, administered at intervals of 3 hours, day and night in aqueous solution. There is little information on the use of penicillin in an absorption delaying vehicle in infants. Post-treatment observation is the same as for adults.

A S.T.S. from the umbilical cord is an indication of the amount of reagin in the maternal blood and not that of the infant's. A child may be born with a negative S.T.S. and have syphilis. On the other hand a child may be born with a positive test and not have syphilis. In a suspicious case a blood test should be done every two weeks for two months. If a positive at birth reverses to negative in 2 months the child almost certainly has not got syphilis. If a negative at birth becomes positive within two months and confirmed on repetition the child has syphilis. A healthy child repeatedly negative for 4 months may be discharged as not having syphilis.

Case Report of Undulant Fever

J. G. Pincock, M.D.

The diagnosis of Brucellosis is a difficult one. Symptoms may mimic any one of a legion of other diseases. Not uncommonly in chronic cases, it can be mistaken for psychoneurotic complaints and of course, the converse occurs with relatively too high frequency. The following is a report of an acute case which was proven by obtaining positive blood cultures:

Mr. R. D., age 28. Reported sick 19 April, 1948, with complaints of recurring chills and fever for the preceding 2 weeks. On April 7, 1948, began to have chills and fever. His hands were cold and numb and he had definite rigors lasting for 1 hour and this was followed by mounting fever which returned near normal after 3 hours. He had at least one or two chills each day for 14 days prior to reporting sick. During the remainder of the day was feeling relatively well. The temperature level varied from normal to spikes of 102 - 104.5. There was no previous history of chills. He also complained of poor appetite for past 2 weeks; had lost 20 pounds weight in past 2 months, had some sleeplessness and tiredness. He had some pain in left chest—crampy, easily relieved by rest which had been present since 1944. There was frequency 6 - 8X daily and nocturia 2X. Otherwise with the exception of rather ready fatiguability, there was no difficulty.

Previously had pneumonia as a child. Cervical adenopathy 1932. Tonsillectomy 1924.

In 1944, had been in a bomb blast with damage to both ears, shrapnel wounds, and injury to right calcaneus. He had been in service from June, 1940, to September, 1945, including 4 years of overseas service. During this period, he suffered from symptoms of fatigue, sweating, tremors, poor sleep and headaches. He was discharged from service with a diagnosis of anxiety state and was treated at Deer Lodge Hospital with good effect in November, 1945.

Since discharge from hospital in 1945, he has worked in Refuse disposal branch of Municipal Public Health Dept. He drives a pick-up truck. He is married with 2 children. Domestic relations are good but has had some financial difficulties mainly because of illness of his wife and himself.

On admission, he described the following additional symptoms: A compressing headache over the whole head, never severe but relatively constant, worse after chill and fever. Some postural dizziness on occasion: a non-productive cough for 5 days prior to admission; a pain in left chest, crampy in nature—not disabling, attributed by him to "nerves." Poor appetite for 5 days, slight nausea, nocturia twice nightly for 2 weeks.

Physical examination revealed a young muscular adult male obviously ill, perspiring profusely. Temperature 103.2, P. 110, R. 20. Pupils were normal and reacted to light and accommodation. No cervical glands were felt, thyroid was normal size. Chest examination showed slightly diminished resonance in both bases, sounds were normal. Heart was normal. B.P. 120/70. Abdomen tender on deep palpation. Liver and spleen not enlarged. Reflexes active and equal. He was investigated from this point as a pyrexia of unknown origin.

W.R. neg. Blood Hgb 80%. W.B.C. 5,000 normal differential.

No malarial parasites found. BSR - 10 mm.

Urine .02 mgm % albumin, otherwise negative Blood agglutination positive 1-1600 for B. abortus. Intradermal tests — histoplasmin and tuberculin—negative. Brucellergin—marked positive. Liver function tests showed a thymol turbidity of 6 units. Bone marrow was normal.

Accordingly a diagnosis of acute brucellosis was made and blood cultures taken 3 successive days as well as a bone marrow culture. The culture done on April 28, 1948, was positive for Brucella abortus after 18 days growth under CO_2. Accordingly, the laboratory findings and clinical findings substantiated a diagnosis of acute brucellosis.

Treatment

On admission, because of high fever, patient had been put on penicillin 50,000 u. every 3 hours. This was ineffective and discontinued on the 4th hospital day. Patient continued to have a daily fever up to 101° and on 15th hospital day, treatment with streptomycin and sulfadiazine was commenced according to the method reported by Spinck. Dosage used was Streptomycin ¼ gm. (every 3 hours) for 10 days. Sulfadiazine gr. XV (every 4 hours) for 21 days. Fever gradually subsided and remained normal on the 24th hospital day (10th day of treatment). There was no rise subsequent to this date. Patient reported feeling much improved. Appetite was better and he gained 6½ pounds in weight. His symptoms improved and was discharged from hospital on June 1, 1948. At this time, blood agglutination for Brucella was 1:1600. Sed. rate was 29 mm. and other laboratory findings were normal. He has been seen on several occasions since discharge and agglutinations done with following results:

June 18, 1948	1 - 1600
July 3, 1948	1 - 800
Aug. 8, 1948	1 - 320
Sept. 7, 1948	1 - 400

Symptomatically, patient is improved, now weighs 170 pounds, has no complaints (Aug. 31) and suffers slight fatigue only on extreme work.

An attempt was made to trace infection to unpasteurized milk. The dairy was asked to have the herd tested and no animal was found to be suffering from abortus infection. The Municipal Health Department could not find any source of infection in this case though a thorough investigation was carried out.

In view of previous symptoms overseas and similarity between the symptoms of psychoneurosis, it was considered possible that this man may have had chronic Brucellosis with a flare-up at present admission. However, in reviewing the case with Dept. of Neuropsychiatry, there is little doubt that the diagnosis of anxiety state was correct and the patient's reaction to Psycho-therapy bears this out.

At present the patient shows marked clinical and laboratory signs of improvement but the question of cure remains equivocal. A case of this type must be followed for 18 months to be relatively certain that the infection has been arrested.

Diagnosis of Brucellosis is extremely difficult and the one positive criteria is the finding of the organism and growing it from blood or tissue cultures. Agglutination is a useful aid particularly if a very high or rising titre can be demonstrated. Diagnosis from symptoms and physical signs is well nigh impossible as the disease simulates many other well known conditions such as anxiety states as mentioned, chronic hepatitis, rheumatic fever, rheumatoid arthritis, typhoid fever and a host of unrelated, but typically low grade infections.

The treatment has been fraught with many pitfalls and enthusiastic therapeutists have, on many occasions, been led astray because of remissions of the disease which occur spontaneously but coincidentally with the current method of treatment. Spinck has shown some well documented cases which have responded to a combination of sulfadiazine and streptomycin therapy. He has followed these for sufficiently prolonged periods that a question of cure may be considered as fairly reasonable. This case represents one in which positive evidence of infection was shown by blood culture and high agglutination, and response to therapy by a fall in titre and an improvement in symptoms.

Summary

A case of acute Brucellosis with positive blood culture has been presented. The response to therapy with combined streptomycin and sulfadiazine has been indicated. The difficulties in diagnosis and therapy have been outlined.

ORTHOPEDICS

Reported by F. G. Stuart, M.D.

A Symposium of Tumors of Bone*

The Classification of Tumors of Bone and the Presenting Clinical Symptoms

H. Funk, M.D.

There are numerous classifications of Bone Tumors. The classification used by the Registry of Bone Tumors of the American College of Surgeons is widely accepted and very logical. The following is such a classification:

Tumors of Osseous Origin

Fibrocartilagenous

Osteochondroma, Chondroma, Chondroblastic Sarcoma, Chondrosarcoma.

Resorptive Series

Giant Cell, Bone Cyst, Diffuse Osteitis Fibrosa.

Fibro-Osseous

Osteomas of skull and jaws, Sclerosing Sarcoma, Osteolytic Sarcoma.

Tumors of Non-Osseous Origin

Marrow and Haversian System

Ewing's Endothelial-Myeloma, Multiple Myeloma.

Metastatic

Ca of Prostate, Breast, Kidney, etc.

Invasion by Direct Extension

Fascial Sarcoma, Neurogenic Sarcoma.

This classification stresses developmental origins and explains the age incidence of certain tumors. The human skeleton goes through a series of stages in the course of its development. Remnants of earlier stages may persist and exist beside later stages. Thus tumors characteristic of any stage may appear at any time.

The primordial connective tissue of the foetus may develop directly into bone. The latter is the membranous bone of the skull and cortex generally. The same preformed connective tissue has the potentiality of developing into foetal, then, adult cartilage and finally by a complex process of calcification, resorption and recalcification into mature bone.

The skull and cortex are examples of direct ossification in membrane and give rise to the fibro-osseous types of bone tumors.

The incidence of primary tumors increases in proportion as the number of stages through which bone passes in its development. Hence tumors are relatively few in the skull where the change of foetal connective tissue into bone is direct. They are more common about the joints and epiphyseal lines where several developmental stages follow one another. It is the islands of connective tissue and delayed cartilaginous steps which persist in the latter locations that provide such fertile soil for tumor development.

The tumors derived from the primary elements of the fibro-cartilage series may be benign or malignant. The former are the osteochondromata or exostoses and chondroma. The malignant are chondroblastic (sclerosing) sarcoma and chondrosarcoma.

The tumors associated with the resorptive stage of the fibro-cartilaginous series are an interesting group. This stage is limited to the region of the epiphyseal line. Giant cell tumors, bone cysts and diffuse fibro-cystic conditions are derived from it.

The fibro-osseous or membranous series give rise to the osteoma of the skull as well as the osteolytic and osteogenic sarcoma of the long bones.

The patient with a tumor of bone may present himself for a variety of reasons.

Fracture, occurring as the result of a minor trauma, often occurs especially in the cystic and secondary metastatic lesions. Pain is a common initial complaint but is so variable that there isn't anything characteristic about it. The presence of metastases is often heralded by pain many months before x-ray evidence is found. The presence of a mass as the presenting symptom is often a sign of a rapidly growing tumor. Trauma has probably no etiological significance, but is often the event that draws the patient's attention to a lesion and thereby receives the blame for it.

The Radiological Features in Tumors of Bone

J. W. Simpson, M.D.

In the investigation of a suspected tumor of bone, x-ray examination is done with a view to determining:

1. The presence of a radiographically demonstrable tumor and its relation to bone;
2. Its apparent extent;
3. Evidence pointing to the histological nature of the tumor and therefore whether it is benign or malignant.

The information gained by this method of examination may at times be sufficient to make a specific pathological diagnosis. At other times it is inconclusive by itself, but may be significant when correlated with other features in the case.

In general the radiological pathology of bone tumors conforms to specific patterns. In individual instances, however, these patterns may be distorted to such an extent that the picture is not typical but may be consistent with two or more conditions.

* Sponsored by the Tumor Clinic and presented at the Clinical Luncheon, St. Boniface Hospital, October 14, 1948.

The following is a description of the features that are generally regarded as typical of various bone tumors. It must be realized that many individual exceptions will be encountered in actual practice.

(N.B.: Radiographs of these lesions were shown in conjunction with this portion of the symposium at the meeting).

Benign Tumors

A. Proliferative Types

1. Osteomata. These are small projecting bony outgrowths. The cortex of the tumor is continuous with that of the parent bone. The internal structure is similar to ordinary bone except in "ivory" osteomas of the cranial bones which are very dense. Radiological diagnosis is quite reliable.

2. Osteochondromata. These are also bony outgrowths, but differ from osteomata in being larger and not having a normal internal bone pattern. Large translucent zones are present in these tumors and represent the cartilaginous component. They may be solitary or multiple (hereditary type). The radiographic appearance leaves little doubt regarding their nature unless they are predominately cartilaginous in composition when confusion with sarcoma may arise.

B. Bone Replacing Types

These are represented on the x-ray by translucent zones. Because local dissolution of bone is common to all members of this group it is difficult to make an accurate histological diagnosis on x-ray appearances only in every case. Likewise malignancy cannot always be differentiated.

1. Enchondromata. These are represented by translucent zones within a bone, usually a phalanx. They cause varying degrees of expansion and in some cases this is very disfiguring. They may be multiple or single.

2. Simple bone cysts. These are well defined translucent areas generally found in long bones associated with pathological fractures or incidental to routine examination in any injury. Expansion of bone is unusual and they are solitary. Most of them are encountered in young individuals.

3. Fibro-cystic disease. This includes a number of conditions in which normal bone is replaced and the cortex expanded. Multiplicity of lesions is quite common. Osteitis fibrosa cystica, Albright's Syndrome, mono- and polyostatic fibrous dysplasia are some of the members of this group.

4. Giant Cell Tumors. This unique group destroys bone locally. The cortex is often expanded and trabeculations through the translucent zone may or may not be present. They are invariably situated at the ends of bones.

Malignant Tumors—Primary

In contrast to benign bone replacing tumors these break through the cortex and infiltrate the surrounding soft tissue. This is because their rapid growth does not allow external bone proliferation sufficient opportunity to compensate for internal loss. The slow growth of the benign group accounts for the bony expansion so often found.

1. Osteogenic Sarcoma. These generally occur near the ends of long bones. They have proliferative and destructive characteristics which may be intermingled or one or the other may predominate. They occur at the ends of long bones. Where destruction predominates (osteolytic type) the cortex is usually wiped out and the tumor infiltrates into the adjacent soft tissues. Fibro-sarcoma, chondro-sarcoma and angio-sarcoma may produce similar changes. It is therefore difficult for the radiologists to specify more than that there is a destructive lesion present.

In the cases where proliferation is paramount (osteoblastic type) extensive tumor bone formation is a fairly exclusive feature and upon it a positive radiological diagnosis can be made.

In those cases in which the proliferative and destructive features are both present there is considerable distortion of these "typical" appearances.

2. Ewing's Tumor. This is a destructive tumor which unlike osteogenic sarcoma usually involves the entire length of a bone. The tumor tissue readily penetrates through the cortex and elevates the periosteum which will then proceed to lay down a layer of normal bone away from the cortex. This in turn is breeched by the tumor and results in successive layers of new bone formation that is classically described as the "onion skin" appearance. In most instances, however, new bone formation may be very meagre or distorted. Acute osteomyelitis and osteogenic sarcoma may produce similar pictures, making an accurate diagnosis impossible. The rapid response of Ewing's tumor to x-ray therapy may be considered a diagnostic feature.

3. Multiple Myeloma—This lesion is osteolytic and as the name implies arises in multiple situations. The involved areas are "punched out" translucent zones with no evidence of reaction in the surrounding bone. They are most characteristically seen in the cranium. Secondary carcinomatosis of bone and leukemic infiltrations may be impossible to differentiate from multiple myeloma by x-ray alone.

Malignant Tumors—Metastatic

These may be osteoblastic or osteolytic. In most cases there is some other evidence of the primary tumor responsible.

1. Osteoblastic metastases. In this type dense bone of a fairly homogeneous texture replaces the normal trabecular pattern. Most secondaries from the prostate and some from the breast are of this type. The spine and pelvis are most often involved.

There is usually no change in the external shape of the involved bone. Paget's disease is differentiated by the fact that although in it a new type of bone replaces the normal, it has a definite pattern. The latter is much coarser than normal. Plastic changes also occur in Paget's disease which are absent in osteoblastic metastases.

2. Osteolytic metastases. These are areas of bone lysis due to growth within a bone. Collapse and fracture of the involved bone is therefore common. Carcinoma of the breast is probably the commonest precursor and the metastases are often multiple. Carcinoma of the lung, kidney and thyroid are also frequent sources. In these cases the metastases are often solitary. From the x-ray alone it is not possible to distinguish the site of the primary lesion.

The Diagnosis of Bone Tumors

K. C. McGibbon, M.D.

It is now an accepted principle that successful treatment of bone tumors depends on early diagnosis. Our knowledge of bone tumors has developed and will continue to progress as long as there is co-operation between the general practitioner, radiologist, pathologist and surgeon. No physician in general practice sees enough patients with bone tumors to become proficient in their care. Therefore he must continue to look to the consultants in the larger educational centres for assistance. For the latter there is available the store of information amassed by the research of the Registry of Bone Tumors and other groups. We should remember that we are at liberty to submit x-rays and slides to the Registry and other centres for an opinion to help us arrive at a diagnosis in a difficult case.

Once the clinical suspicion of a bone tumor arises an x-ray examination should be done. This is the first link in the chain of co-operation leading to a diagnosis. It should be emphasized here that we must not rely completely on the radiologist. It is true that the x-ray picture is some cases is diagnostic, but in many others the radiologist can only indicate the likeliest possibilities with the radiographic picture.

If the x-ray examination is negative and unexplained symptoms persist, the possibility of bone tumor should not be dismissed. If no clinical localization is obtainable x-ray examination should be repeated at short intervals. When metastatic lesions are included in the possible diagnosis on x-ray examination efforts should be made to determine the primary. A chest x-ray in all cases is advisable.

In some cases clinical findings and x-ray examination will not suffice to make a diagnosis. Biopsy should then be done. This should be performed if possible in a bloodless field with the pathologist present. The latter can direct the surgeon to the best site for removal of a specimen. If there is some doubt regarding the histology the slide should be sent elsewhere for further opinions.

In conclusion, when the time comes that an x-ray examination is performed on every patient who complains of a persistent painful region or swelling we shall have made a great step forward in obtaining early diagnosis. In those cases in which a malignant lesion of bone is suspected the routine x-ray of the chest is imperative and will give the earliest evidence of pulmonary metastases. With earlier diagnosis, the exclusion of metastases, and improved treatment, we may look forward to a better prognosis. Too often the prognosis is hopeless because the patients come for consultation after having inadequate treatment based on incorrect diagnosis. We must continue in our efforts to educate the general profession to the importance of establishing early diagnosis and of carrying out adequate treatment and as has been stated this can only be done by the closest co-operation of all concerned.

The Treatment and Prognosis of Bone Tumors

W. B. MacKinnon, M.D., F.R.C.S. (C)

Few surgeons have sufficient experience with bone tumors to form definite opinions of their treatment and prognosis. For this reason the Registry of Bone Sarcoma of the American College of Surgeons was formed to study the problem on an international scale. These statistics and those of large groups, such as the Memorial Hospital in New York, the Campbell Clinic, Mayo Clinic, and the Manchester Infirmary have had a great influence on present-day treatment.

The scope of these remarks will only permit a brief reference to the main problems. The classifications of the Registry of bone Sarcoma will be followed in terminology.

There are four groups of lesions calling for treatment: (1) Benign lesions; (2) Pre- malignant lesions; (3) Primary malignant lesions; (4) Metastatic malignancy.

Benign Lesions — Single exostosis, or osteoma may require treatment because of local pain or pressure on adjacent structures. The symptoms are frequently due to an inflamed bursa which overlies the summit of the lesion. Treatment consists in complete local excision. The prognosis is good; malignant change is very rare.

Multiple osteochondromata of the familial type may require treatment for the same reasons as the single exostosis. Treatment is best deferred until maturity and the individual lesions treated on their merits. Associated deformities of long bones may also require correction.

Bone Cysts have been included as this lesion must be differentiated from other lesions, and es-

pecially from giant cell tumor. The lesion usually passes unnoticed unless fracture occurs. Fractures heal without difficulty. Bancroft states that only 18% of cysts heal following fracture. Two cases in the Winnipeg area are known to have been treated for recurrent fracture through bone cysts. Large cysts are probably better treated by curettage and packing with bone chips. The prognosis is good.

Generalized Osteitis Fibrosa Cystica may have to be differentiated from bone tumor. Parathyroid adenoma will usually be found and can be dealt with.

The osteoid osteoma — a tumor arising from osteoblasts might be added to the fibro-osseous group. This tumor responds well to local excision and the prognosis is excellent.

Pre-malignant Lesions—Chondroma, frequently confined to interior of a bone, was formerly known as enchondroma. Especially in the long bones it may undergo malignant change to chondrosarcoma. It should be treated by wide excision and cauterization of the resulting cavity with saturated zinc chloride solution for one minute followed by the use of Dakins solution. Prognosis is good with adequate treatment.

Giant Cell Tumor—Treatment must be thorough because of a tendency to recurrence locally and the rare occurrence of sarcomatous change. Thorough local excision of tumor tissues and curettage is the treatment of choice. The cavity is then cauterized as described for chondroma. If the cavity is large, bone chips from the tibia or iliac crest may be employed to promote osteogenesis. Care must be taken to avoid the transfer of tumor cells to the donor site. With these methods the prognosis is good.

X-ray therapy is usually reserved for sites which are difficult of access to the surgeon; the ilium and spine are examples of such sites. This treatment adequately applied may permanently arrest the growth.

Primary Malignant Bone Tumors—Osteogenic Sarcoma: When the disease is confined to an extremity, amputation is indicated. The site of amputation should be well above the tumor level; local recurrence at the amputation site is very rare. X-ray treatment and Coley's fluid are worth giving as adjunct treatment.

Meyerding has advocated wide local resection and replacement by bone graft for cases of low malignancy.

Prognosis is relatively poor but not hopeless. Platt, of Manchester, records 13 five-year survivals of this type in his series of 161 cases of primary bone malignancy. The New York Memorial Hospital report 26 five-year survivals in 219 cases. No difference is observed in prognosis between the osteolytic or osteoblastic types.

Ewing's Tumor—This tumor is known to metastasis early to other bones and to the lungs. If confined to an extremity, amputation should be performed and pre- and post-operative x-ray therapy given. Marked recession following x-ray therapy is characteristic of this tumor; recurrence, however, occurs inevitably.

The Registry of Bone Sarcoma records 11 cases surviving five years or more. Coley's fluid was given in 6 of these. Ewing's is the most lethal of all bone sarcomas.

Multiple Myaeloma presents a hopeless surgical problem. On diagnosis, multiple bones are usually involved. Treatment is palliative and is given in the form of x-ray therapy and Coley's fluid. Pain may be very severe and recently great relief of pain by the use of stilbamine and pentamide has been reported by Snapper.

Fibro Sarcoma and Neurogenic Sarcoma—Bone may be eroded by malignant tumor arising from outside the bone. Fibrosarcoma and Neurogenic Sarcoma are examples. Prognosis is much better in neurogenic sarcoma and wide local excision is usually sufficient treatment.

Secondary Carcinoma of Bone—The treatment of secondary bone metastases from carcinoma is purely palliative. X-ray therapy frequently is effective in slowing up growth and in the relief of pain. Operative treatment has a limited field of application.

In a proportion of cases, hypernephroma, or carcinoma of the kidney may be diagnosed with only one metastatic bone deposit. In a few of these cases, excision of the affected kidney and the single secondary deposit may be attempted. Occasionally carcinoma of the thyroid may be similarly dealt with.

Carcinoma of the prostate with bone metastases may be temporarily controlled by the use of stilboesterol and castration. X-ray therapy may be employed as well.

In carcinoma of the breast, testosterone may bring about temporary remission and relief of symptoms. X-ray therapy again is applicable. Symptomic relief from the pain of bone malignancy, which has progressed beyond the stage suitable for local treatment is often difficult.

(1) Suitable splinting of the effected part by plaster or shells or other measures may be useful.

(2) Demerol, morphine and heroin may finally be required.

Operative procedure for the relief of pain may be employed.

(1) Prefrontal lobotomy or leucotomy for high lesions.

(2) Chordotomy for lower lesions.

(3) Posterior root sections may also be useful.

Secondary anaemia may be temporarily alleviated by the use of iron therapy.

Pathological fractures will unite when suitable treatment is applied and the patient survives long enough.

The Pathological Features of Bone Tumors

James Prendergast, M.D.

The cellular picture of benign tumors is clear cut and offers no difficulty in histological diagnosis. This refers to osteoma, osteochondroma or exostosis, fibroma, chondroma and giant cell tumors. The chondromas at times undergo myxomatous and cystic degeneration and sometimes malignant change. The histology may be very puzzling in such cases. The giant cell tumor consists of spindle and round cells and the characteristic giant cell osteoclasts. Because of the latter this tumor is sometimes called an osteoclastoma.

The primary malignant tumors of bone are, of course, sarcomas because bone is a connective tissue. Strictly speaking bone gives rise to only one primary malignant tumor, namely osteogenic sarcoma which is derived from osteoblasts. This tumor is the commonest malignant tumor arising from bone, especially its osteolytic form. Fibrosarcoma originates in the fibroblasts of the periosteum. The myeloma is derived from bone marrow, the most common form being the plasma cell type with its easily-identified plasma cells. As the name implies, angiosarcomas grow from the blood vessels. The reticulo-endothelial cells of bone marrow give rise to the reticulum cell sarcomas. Another important tumor is the so-called Ewing's tumor. This is derived from the marrow and is variously described as endothelial myeloma or angioendothelioma because of its angioblastic properties. Ewing described his tumor in 1921 as an entity presenting certain clinical and radiological features and stated it was derived from the perivascular endothelium. Modern authorities are divided into two opposing camps over this tumor, those with Ewing and those opposed to him. Ewing's adversaries, on reviewing fairly large groups of tumors conforming to the Ewing syndrome clinically and radiologically, did not find a uniform histological pattern. They found a versatile histology with undifferentiated cells as well as immature red cells, reticulum cells and capillary endothelial cells. To this Ewing replies that these tumors are reticulum cell sarcomas and reiterates that the stem cell of his tumor is not a reticular cell, but rather the perivascular endothelial cells. Ewing's tumor has been confused with many other pathological conditions, notably osteomyelitis and vice versa.

Oberling, one of Ewing's main critics, believes without any doubt that the stem cell in Ewing's tumor should be considered a young reticular cell. Its inherent potential for differentiation explains the inconstant and variable histology that has been encountered in lesions conforming to Ewing's clinical and radiological stipulations. Thus Oberling concludes that reticulum cell sarcoma and Ewing's tumor are simply variants of the same thing. To some, this theory merely spreads oil on troubled waters and does not settle the argument. Stout, of Columbia, suggests and hopes that some day tissue culture will solve this problem which in the meantime Foote relegates to the docket of unfinished business.

References

Christopher: Major Surgery, 3rd Edition.
Geschickter and Copeland: Bone Tumors.

TUBERCULOSIS

The Use of B.C.G. in Manitoba

Donald L. Scott, M.D.

B.C.G., or, to give this vaccine its full name, Bacillus Calmette-Guerin, is a non-virulent culture of live bovine tubercle bacilli. It was first discovered in 1908 by Calmette and Guerin, two French doctors who were investigating the possibility of producing immunity to tuberculosis along the lines of small-pox immunity. The B.C.G. vaccine was and is produced by culturing bovine tubercle bacilli on special media and after several subcultures the germs are found to be so attenuated that they cannot or do not cause lesions. They are still capable of propagation, however, and thus the original culture has been kept alive.

From 1908 until 1920, the date of their first publication, these two scientists continued to test the safety of the vaccine on animals and finally convinced of this they tried it on humans and found it to be non-pathogenic to human beings but it did produce a positive skin reaction to tuberculin. They hoped that this would prove to be a vaccination similar to that of small-pox vaccination. Instead, after a great deal of work in France and the Scandinavian countries, B.C.G. was found:

(1) to be a harmless culture of live bovine bacilli;

(2) to be a substance that produced a positive skin reaction to tuberculin;

(3) to increase resistance to tuberculosis but did not produce absolute immunity.

The high incidence of tuberculosis amongst nurses and others dealing with the sick had been a source of concern for some years. This was first pointed out by Heimbeck in Oslo in 1927. In 1930 Dr. E. L. Ross, in an article in the Canadian Medical Journal, reported on a series of sixty nurses who had been patients at the Sanatorium during a single five-year period. He pointed out that at one time there were as many as 17 nurses on treatment, about 12 per cent of the total number of female patients. On an average at that time there were as many nurses under treatment as there were school teachers, stenographers, and University women together.

Measures to improve this situation were studied with special attention to improved technique on wards, earlier diagnosis, and segregation, and frequent examinations of student nurses. These measures did improve conditions and also made the student bodies and hospital authorities more conscious of the danger.

Paper given at the Annual Meeting of the Manitoba Health Officers' Association, October 18, 1948, Marlborough Hotel, Winnipeg, Manitoba.

Tuberculin testing had not been part of the nurses' examinations heretofore. A few spasmodic tuberculin surveys had been done and to our surprise we found that students entering training did not have a high incidence of positive skin tests. It began to look as if the old thought—that everyone had been exposed to tuberculosis by the time they reached adult life—was wrong.

In 1934 all nurses entering training at the Winnipeg General Hospital were tested and 33% were found positive. It was decided to conduct a survey of tuberculin sensitivity at the Winnipeg General Hospital Training School, and from 1934 to 1943 all classes were tuberculin tested twice a year, repeat tests being done only on the previous negative reactors. This also gave us the incidence of exposure to open tuberculosis during the three years of training.

During this ten-year period, 774 girls, at an average age of twenty, were admitted to the Winnipeg General Hospital Training School. 217 discontinued training for one reason or another, 557 graduating. Over the period 28.7% or 160 were positive to tuberculin on admission, and 33.8% or 188 became positive during their three-year period of training. 37.5% or 209 remained negative.

The study of the incidence of tuberculous manifestations was surprising and certainly pointed the way for future developments. There were 29 nurses who developed tuberculosis in some form and these 29 all had negative tuberculin tests at the start of training. There were no cases of tuberculosis among the 160 who were positive at the beginning of their training.

Working along similar lines Dr. Ferguson, in Saskatchewan, began a programme of B.C.G. vaccination of nurses in eight training schools in that province. Briefly, he found that in the ten-year period from 1934 to 1943, inclusive, of 1,005 vaccinated negatives 9 or 0.895% developed tuberculosis; among 759 negative non-vaccinated cases there were 29 who developed manifest tuberculosis, or 3.82%; there were 278 positive to tuberculin on admission and 3 or 1.08% developed tuberculosis.

From these studies and the experience of others we felt that B.C.G. vaccination did provide some degree of protection to this class of professional people, regarded as unavoidably exposed personnel. Observers throughout the world agree after years of observation that the vaccination is harmless. In the majority of instances a positive tuberculin test results; it is still unknown how long the test remains positive. The vaccination produces some degree of immunity but immunity is not absolute. Lesions in the vaccinated people are less severe in extent and duration than in the non-

vaccinated and these lesions tend to calcify earlier.

In Manitoba the vaccine was first administered as a regular procedure at Ninette in September, 1944, beginning with nursing and orderly staff. No segregation was practised after vaccination. Up to October 5, 1948, 122 of the staff had been vaccinated and of 108 tested with tuberculin 83.3% became positive. Five of these have developed some tuberculous condition but in no case has the disease seemed to be very severe or progressive. There are still two of them on treatment for minimal disease.

After discussions with the Medical Advisory Committee of the Sanatorium Board of Manitoba and receiving the approval of the Winnipeg Medical Society the vaccination of unavoidably exposed personnel was begun in December, 1946, in Winnipeg hospitals. The vaccine is prepared and delivered to us by Dr. Armand Frappier, Director of the Institute of Microbiology and Hygiene of the University of Montreal. Vaccination is only done at the request of the individual desiring vaccination and, if a minor, the signed request of parent or guardian.

In Manitoba the vaccine is now administered at the Manitoba Sanatorium, Ninette, St. Boniface Sanatorium, St. Vital, and the Central Tuberculosis Clinic, Winnipeg. The groups so far offered this vaccine are nurses in training and graduates in General Hospitals, Mental Hospitals, and Sanatoria, and also medical students. We must limit its use somewhat because of difficulties in administering and keeping the vaccine. Being a live culture it only keeps for about a week. For these reasons it is unlikely that we will try a programme of general vaccination for sometime. Some observers also point out that this is unnecessary in the Western World because of the rapid decline in tuberculosis incidence in the past 25 years. This is possibly as good an argument as any because there is no doubt in the minds of many that it is better to be able to live our lives through and never have to be exposed to tuberculosis or develop a positive tuberculin test. Regardless of this attitude we feel that if we protect the people who attend the sick, thereby doing away with one of the great sources of new cases, another important step in wiping out tuberculosis has been taken.

The first vaccinations were done by intracutaneous injection of a measured amount of vaccine. This produced an ulcer which in some cases was very slow to heal. After some deliberation, the multiple puncture method was tried and it was found that this was just as satisfactory in producing a positive tuberculin reaction and there were no complications. At present we vaccinate on the back between the shoulder blades. A drop of vaccine is placed on the skin after cleansing and smeared in a linear fashion by a needle for a distance of about one inch. A cutting needle is used to prick the skin by pressing it horizontally into the skin until the point catches, and then raising the needle quickly. Thirty punctures are made on each side through the vaccine and the area then allowed to dry. The patient is instructed not to wash the site for 24 hours.

The vaccine can also be given the new born by mouth during the first ten days of life. This could be a useful preventive measure in families where exposure is liable to take place. We have not attained the facilities or staff for this procedure as yet.

To date in Manitoba 1121 vaccinations have been done. At the Central Clinic we have done 949 vaccinations and 879 or 92.6% have become positive to tuberculin. We prefer to do the testing and vaccinating ourselves because it is all done by one technician, thus keeping dosage and readings uniform.

If B.C.C. as administered to these groups will protect them from casual exposure we consider it well worth while. The vaccination of students and others proposing to travel or study in communities or countries where the incidence of tuberculosis is much higher than our own should also be considered. If and when an extension of this programme is considered we might turn our attention to communities with a high incidence of disease and to classes of people known to have a high infection rate, such as the half-breed population. Our Treaty Indian population is already being vaccinated where possible by the Department of Indian Affairs. The prevention of disease in these two classes of people should have an overall effect in reducing disease in the province as a whole.

ANAESTHESIOLOGY

Edited by R. G. Whitehead, M.D.

Next Meeting

The meetings of the Winnipeg Anaesthetists Society are held on the first Tuesday of every month in the Medical Arts Club Rooms.

Report of Meeting

A Special Meeting of the Winnipeg Anaesthetists' Society was held on December 1st, 1948, in the Medical Arts Club Rooms for the purpose of discussing the payment of Anaesthetists in Winnipeg. The following resolution was proposed and unanimously adopted by the twenty members present, that:

"1. After due consideration it would seem desirable that the Anaesthetists of Winnipeg should work on a fee for service basis rather than for salaries. It has become an established practice throughout Canada, Vancouver being the latest centre to adopt this system of payment of Anaesthetists. There is no valid reason why one section of the practising profession should work on a different basis than the rest.

"2. The following reasons for this change have been advanced many times:

"It is well known that Anaesthesia has long been a step-sister in the profession. This state of affairs, although ameliorated somewhat in the last decade, still persists in sufficient degree that all Anaesthetists are painfully aware of it on occasion. It appears to us that part of this attitude stems from the fact that Anaesthetists in this city are on a salary, instead of a fee for service basis.

"3. It is a sad fact that at a time when Anaesthetists are more in demand than ever, several fully trained and experienced Anaesthetists have been lost to the Specialty in Winnipeg during the last two years. Some of these were of a research calibre, whose names are well known, and would have been a credit to Winnipeg. Many Anaesthetists in Winnipeg at present might very possibly follow their example if the attraction should outweigh their present ties and loyalties. There is a desperate shortage of trained Anaesthetists in Canada and the United States. This state of affairs will probably persist for at least twenty years. It is only by making the Specialty more attractive in Winnipeg that we will be able to keep our standards high. Under present conditions it is most unlikely that trained Anaesthetists will be attracted to this city to work in their specialty. For the same reasons recruits to the specialty are few, and often drop out after a period of training to pursue another line of work.

"4. Relative to the degree of training needed and the responsibility taken, Anaesthetists in Winnipeg are poorly recompensed.

"5. To recapitulate, we, the Winnipeg Anaesthetists assembled are of the opinion that fee for service for Anaesthesia will:

"(a) Provide better anaesthesia for a greater number of people than the present arrangement in Winnipeg.

"(b) Improve the status of the Anaesthetist in relation with other members of the profession.

"(c) Tend to hold those already in the specialty and attract interested persons from other parts of Canada.

"(d) Will provide greater financial security to those engaged in anaesthesiology in Winnipeg, which will bring Winnipeg in line with other parts of Canada.

"6. In view of the above reasons, I move that the Winnipeg Anaesthetists Society go on record as approving this preamble and that it advise its members to make the necessary arrangements in their own spheres as soon as possible, the proposed rate of fee for service to be based on the Anaesthetic schedule of fees as approved by the Manitoba Medical Association."

The regular meeting of the Winnipeg Anaesthetists' Society was held Tuesday, December 7th, 1948, in the Medical Arts Club Rooms.

Dr. Marjorie Bennett presented a brief resume of the clinical highlights of the annual meeting of the American Society of Anaesthesiologists held in St. Louis, Missouri, in November. Dr. Dorothy Barnhouse spoke on the Anaesthetic Educational Programme as discussed at the same meeting.

R. G. W.

GYNECOLOGY

Edited by R. Lyons, B.A., M.R.C.S., L.R.C.P., M.R.C.O.G.

Puerperal Mastitis and Infections of the Newborn

H. Guyot, M.D.

Acute mastitis is a serious complication of the puerperium especially if suppuration occurs. There is usually extensive destruction of breast tissue, the abscesses may be multiple and recur over a period of months and breast feeding is interfered with or discontinued. As these infections nearly always occur after the patient has left the hospital, she has to be readmitted for treatment and, as we all know, there is nothing which upsets a mother so much as when she has to go back to the hospital for 1 or 2 weeks and leave her baby at home under the care of a relative or a nurse.

When the breast abscesses are associated with a skin infection in the new born and take on the proportions of an epidemic it becomes a very complicated problem from the standpoint of prevention and treatment. Epidemics of this nature have been reported in the medical journals and appear to have been widely prevalent during the last 3 or 4 years in many hospitals of Canada, United States and Europe.

Since last December several hospitals of this city and some rural hospitals of the Province have had the unfortunate experience of dealing with these infections in both babies and mothers.

The skin lesions in babies are mostly confined to the epidermis. They appear as pustules, varying in size from a pinhead to a half a pea and are surrounded by normal skin. They are superficial and easily broken by rubbing with a gauze sponge. They usually appear quite suddenly, in a matter of a few hours, from 2 days to 2 weeks after birth. More recently we have noticed that these pustules nearly always make their appearance after the baby has been discharged from the hospital. There may be only a few and sometimes the body is covered with them. The common sites are the axilla, the groin, the buttocks, the abdomen, the neck and the scalp. Some babies have subcutaneous abscesses or furunculosis and some have paronychia. A great number of breast abscesses in the newborn have also been noticed. One case of osteomyelitis of the clavicle following an abscess in the neck has been reported and also one case of septicaemia. The cultures taken from these lesions show a staphylococcus aureus haemolyticus. Fortunately the health of the baby is not affected seriously by these pustules and the infection usually clears up in a few days with simple treatment such as breaking the pustules, cleaning with alcohol and painting with mercurochrome. Occasionally there are some that persist for weeks and are a possible source of infection to the mother's breasts.

Shortly after these skin infections were observed in the newborns breast abscesses in nursing mothers began to appear in greater number than what is considered a normal incidence. They all occurred after the mother had left the hospital, i.e., anywhere from 2 weeks to 3 months postpartum. One doctor reported a case of breast abscess 7 months after confinement. The breast infection is characterized by fever, sometimes chills and a painful mass in the breast. In nearly all cases the abscess is localized to 1 lobe of the breast. It affects the parenchyma of the breast, not the interstitial tissue. We can then assume that the infection enters the breast by the lactiferous ducts and not by cracks or fissures of the nipple. It is interesting to note that there were a few cases of breast abscess in mothers who had never nursed their babies.

In order to have an idea of the incidence of these cases of puerperal mastitis a survey was made in the different hospitals of the city and questionnaires were sent to all the rural hospitals. It was found very difficult to arrive at correct figures because some cases were treated at home, some in the doctors' office and some had gone to other hospitals. But we can say that at one time, for some hospitals, the incidence of breast infection was as high as 10%—and the incidence of breast abscess about 5%. This is much higher than the normal incidence which is considered to be ¼ to ½%. Penicillin in high doses, 100,000 units every 3 hours, if given within the first 24 hours of the onset of symptoms, seem to control most of these infections but many cases are seen late and some appear to be resistant to penicillin and go on to abscess formation. Sulfonamides are of doubtful value. The application of penicillin cream or ointment to the nipples during the nursing period was also found to be of no value in the prevention of breast infection.

Right from the beginning of this epidemic it was quite apparent that there was a close relation between the skin infection in babies and the breast abscesses in mothers. Later the same type or strain of staphylococcus aureus was recovered from both lesions. It is easy to imagine how the infection spreads in the nursery from one baby to another and from the baby to the mother's breast.

*Read before Manitoba Medical Association, Winnipeg, Canada, October 20, 1948.

The organism has been cultured and transmitted so many times that it has become more virulent and very selective. It seems to have a predilection for breast tissue only. We do not see any cases of puerperal infection, infected tears or episiotomies, any more than before. There is no doubt that the infection is transmitted by direct contact, i.e. by the fingers of nurses, mothers and doctors. The nose and throat of babies, mothers and all attendants also become carriers of this virulent strain of staphylococcus.

At the end of January a careful investigation was carried out in each hospital so affected. The technique followed in the nursery and the care of the mothers' breasts were carefully scrutinized, the laundry was examined, the wards and nurseries were washed and in some cases painted, the mattresses in the nursery were discarded and new ones bought, all the utensils used such as bottles, nipples, breast pumps, nipple shields, etc., were examined for possible contamination, nose and throat swabs were taken from the personnel, a more rigid technique was instituted and visitors were restricted. In two hospitals the maternity wards were closed completely for a week to 10 days to clean and disinfect the wards.

Here I would like to pay a tribute to the administrating staff of the hospitals of this city who did everything possible to try to control this epidemic, at their own expense and with much hard work. A real endeavour was made to find the cause and measures were taken to prevent the spread of infection.

In spite of all this extra work and precautions, the infection reappeared two weeks later and is still going on but with a lesser incidence and severity.

In August, at a special meeting of the Gynecology and Obstetrics Section of the Winnipeg Medical Society, a committee was named to investigate this epidemic in conjunction with the Department of Health. Three meetings have been held at which this complicated problem was studied and discussed thoroughly but no practical means of eradicating this infection has been found yet. So far the work has been carried out at the Provincial Laboratory to isolate and identify the specific strains of Straphylococcus Aureus which are responsible.

As an experiment, in one hospital, spraying of the nose and throat of all attendants (nurses, maids and interns) is being done with penicillin, 1000 units per cc. of normal saline, 3 times a day, for each person working in the nursery or the maternity ward. In this way it is hoped that the number of specific organism which may be carried in the nose and throat will be reduced and thus help to prevent the spread of infection.

Hospital Clinical Reports

St. Boniface Hospital

Clinical Conference

Reported by F. G. Stuart, M.D.

Case 1: Mr. A. L. C., age 34, Hospital No. A3780. Admitted April 27, 1948.

Entrance Complaint

Breathlessness.
Weakness.
Pain in R.U.Q. and in lower right chest.

Past Illness

Injection treatment for varicose veins, 1936, 1939 and 1941.
Saphenous ligation—bilateral, 1944.
April 5, 1948, multiple ligation of varicose veins.

History of Present Illness

This patient had been discharged from hospital the day after ligation of multiple varicose veins. He had no complaints at the time. At home he felt unwell and by the end of the first week he found it necessary to remain in bed. He stated that he was exceedingly tired and had noted a feeling of faintness on several occasions. He thought he had a slight fever and noted sweating at night.

On the 27th of April, 1948, exactly three weeks after his operation, he suffered a severe pain which he localized to the upper abdomen and lower right chest. He was admitted to hospital per stretcher at 10.30 p.m.

Physical Examination

Temperature 100, pulse 96, Resp. 36.

There was some limitation of respiratory movement. The right base was dull. Crepitations were audible over the right base. Blood pressure was 120/90.

Thrombosis was evident in the veins above the level of ligation in several places.

X-ray examination, April 28, 1948. Chest (portable technic)—Infiltrative changes present in right base.

It was immediately apparent on admission that this patient was suffering from a pulmonary embolus.

Progress

Laboratory examinations done the first day in hospital were as follows: Urinalysis, negative; Sedimentation rate, 45 mm. after one hour (Westergren); Blood count, R.B.C., 5,340,000; Hb, 99%; W.B.C., 16,900; Prothrombin, 100%.

Morphine was prescribed for pain and Dicoumerol 50 mg. Oh ii for six doses was instituted.

The second day in hospital was featured by the appearance of blood streaked sputum. An electrocardiogram was made and reported normal. Because of shortness of breath, continuous oxygen was instituted. A soft diet was taken. The temperature reached 101° in the afternoon. Dicoumerol 50 mg.

On the third day the maximum temperature was 100°. X-ray examination of the chest revealed a dense homogeneous opacity in the lower half of the right lung field which was considered to represent pleural fluid. Dicoumerol 150 mg. Prothrombin time 90% of normal. Over the next few days the Dicoumerol therapy was continued and the temperature and pain subsided. At the time of discharge, May 8, 1948, his prothrombin time was 26%. Recovery was subsequently uneventful.

Discussion

It was observed that the incidence of pulmonary embolism now seemed to be less than it was a few years ago. Early ambulation and pre- and post-operative exercises are probably the factors responsible.

Opinion was divided between surgical and medical treatment in this condition, with the preponderance in favor of the medical.

The argument for surgery centred on the importance of eliminating emboli while waiting for the Dicoumerol to take effect. It was argued that a high femoral or external iliac vein ligation will cut off the passage of further emboli to the chest. Such an operation, however, was not recommended if the "milk leg" of phlebosclerosis was present.

In favor of the medical treatment was its general acceptance and reliability. Elephantiasis subsequent to surgery was mentioned as an occasional aftermath.

It was emphasized that Dicoumerol treatment had to be closely controlled by prothrombin percentage tests. At present there are two different systems of reading prothrombin time, the original Wisconsin and the Mayo methods. The danger level in the former is about 30% and 10% in the latter. One must therefore be aware of which method is in use when controlling Dicoumerol therapy. A level of 20-30% according to the Mayo method is generally effective. In this case a level of 28% was achieved.

Recently some doubt has been cast on the belief that pulmonary emboli originate in the veins of the lower extremities. Careful autopsy studies have revealed that the emboli may originate in veins anywhere in the body. If such is the case ligation of veins at the groin would be a futile procedure in some instances.

There was some speculation regarding the etiology in this case. it was suggested that this patient's wound became infected and he went to bed. The latter was probably a bad thing as it made conditions ideal for the development of a deep thrombo-phlebitis. He probably had several minor and at least one major emboli from this. It was unlikely that emboli could come from the superficial veins as a saphenous ligation had already been done four years ago.

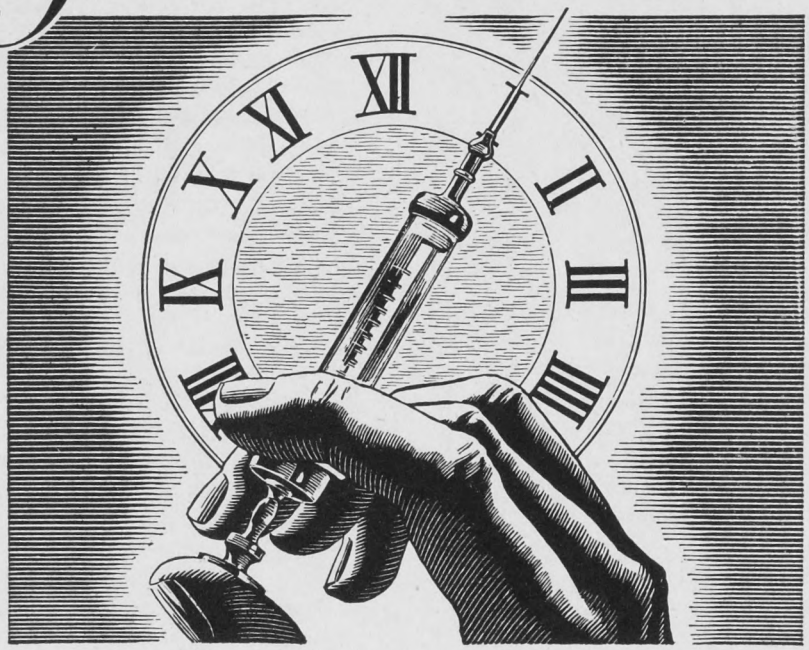
The pain in pulmonary embolus was discussed. Three types were mentioned. The pleural type (which was apparently the pain this patient suffered) originates when the infarct resulting from the embolus extends to the pleura and a reaction is set up that causes irritation of the parietal pleura. Anginal pain may be encountered. It is associated with a large embolus which cuts off a considerable portion of the pulmonary circulation. This throws a strain on the right ventricle which dilates. A relative coronary ischaemia ensues with its associated anginal pain. Electrocardiographic changes are present in such cases. Pain may also arise in the pulmonary artery itself.

Passing mention was made regarding recent researches with a view to predicting the possible occurrence of pulmonary emboli. It has been found that a very unstable fibrinogen B is present instead of the A type in cases liable to thrombosis. It can be detected in the blood by appropriate testing. Dicoumerol will cause the elimination of fibrinogen B.

Finally it was emphasized that the whole problem of blood clotting has been thrown wide open and opinion is in a process of re-crystallization.

Allenburys

Time E-X-T-E-N-D-E-D



A boon to Patient, Doctor and Nurse

Hyperduric

INJECTION SOLUTIONS

for P-R-O-L-O-N-G-E-D action

This series is the result of a search for effective methods of prolonging the pharmacological effect of morphine and other bases. Clinical trials have demonstrated that for a given dose of morphine the period of narcosis can be considerably extended if the base is administered in the form of mucate instead of the usual salts such as tartrate or sulphate. This prolongation of effect is also obtained with the mucic acid compounds of other active bases such as epinephrine.

Hyperduric M.H.E.
Morphine, gr. ¼, hyoscine, gr. 1 80, epinephrine, gr. 1 160, (as mucates) per c.c. Produces amnesia and narcosis for about 8 hours, without fall of blood-pressure.

Hyperduric EPINEPHRINE
1 in 1000 (as mucate). Gives relief for 8 to 10 hours in bronchial asthma.

Hyperduric MORPHINE
Morphine, gr. ½ (as mucate) per c.c. Relieves pain for 8 to 12 hours.

BOXES OF 12 AMPOULES OF 1.1 c.c.

Complete literature supplied on request.

M.48

THE ALLEN AND HANBURYS COMPANY LIMITED • LINDSAY, ONT. • LONDON, ENG.

Winnipeg Medical Society

Reported by L. R. Coke, M.D.

The November meeting of the Winnipeg Medical Society was held in the Medical College and a large number were present. Members stood for a minute in silence in memory of Dr. J. D. McQueen.

Approval was given to a motion from the Council making a grant of five hundred dollars from the Society to the Medical Library. A Symposium on the Modern Treatment of Syphilis was presented. Dr. Backman's contribution is published in this issue of the Review. It is hoped that the other papers will appear soon. By good timing half an hour was kept for discussion and many questions from members were considered.

At the December meeting Professor J. D. Adamson, Dr. A. C. Sinclair, Dr. E. L. Ross and Dr. D. Swartz gave an outline of the use of Streptomycin.

The newness of the drug, the rapidity with which organisms become resistant and the toxic effects were mentioned. Short courses of treatment or interrupted courses were advocated. Effective use in a wide variety of conditions required great care in diagnosis and accurate bacteriology.

In tuberculosis administration of streptomycin was advised in Miliary Disease, in cutaneous ulceration or sinuses, in tracheobronchitis and in laryngeal ulceration. It was thought useful in some cases preoperatively. In tuberculous meningitis it has been disappointing in the late cases. Through the Health Agreement between the Province of Manitoba and the Federal Department Streptomycin has become available for sanatorium cases without additional cost to the patient.

Streptomycin was considered inadvisable in early tuberculosis.

It was not considered a substitute for Sanatorium care.

However, in some cases which heretofore had nothing to go on with, but the spes phthisica, there has been added a spes streptomicica.

The January meeting will be held at 8.15 p.m. on Friday the twenty-first in the Winnipeg General Hospital. Members are advised to use the admitting door or the main entrance and proceed to the Doctor's Cloakroom. Guides will be on hand at the cloakroom to give further directions.

The programme is under the direction of Prof. J. D. Adamson and consists of a number of clinical exhibits which will be on display in the Outpatient Department.

This type of meeting, which makes heavy demands on those in charge of preparations, has been very popular in other medical centres. A large attendance is anticipated and the Programme Committee are confident that members will ask to have a meeting of this type as an annual event.

Manitoba Medical Service

Blue Cross Notes

Effective January 1, 1949, the Manitoba Hospital Service Association will issue new contracts to all its members.

A Non-group contract has been adopted in addition to the Group Contract. This will be issued unemployed persons, and persons employed where there are less than 5 employees. Eligibility: Under 65 years of age and in good health.

Blue Cross Contract Changes

Waiting Periods

A waiting period of 12 months will be required for provision of benefits for:

(1) Maternity, and conditions due to pregnancy. Such waiting period, however, shall not apply to premature termination of pregnancy without childbirth if otherwise childbirth would have occurred after such period.

(2) Any condition, disease or ailment which existed on the Effective Date of the contract or for which medical or surgical treatment or advice was rendered within one year prior to such effective date.

(3) A waiting period of 6 months will be required for tonsillectomies.

Maternity Care

Available only under family contracts after 12 months' membership. Limited to 10 days care at a fixed allowance per diem. Limitations as to days and amount will not apply to conditions due to pregnancy, ectopics, eclampsia, Caesarian sections. These will be covered on the same basis as non-maternity diseases. Days of care for false labour, pre-natal care or post-natal care will be counted in the 10 days provision for maternity.

Diagnostic Procedures

Hospital admissions primarily for diagnostic X-ray, or laboratory examinations or other diagnostic studies, or primarily for physical therapy, are not covered. X-ray examinations, or laboratory examinations are covered only where consistent with the diagnosis and treatment of the condition for which hospitalization is required.

General Practitioners' Association of Manitoba

Executive Officers for 1948-49

Q. D. Jacks ..... Past President
A. T. Gowron ..... President
P. H. McNulty ..... First Vice-President
M. M. Brown ..... Second Vice-President
V. F. Bachynski ..... Recording Secretary
Anna Wilson ..... Corresponding Secretary
Jack McKenty ..... Treasurer

Winnipeg Members:
Clair Benoit
Wm. J. Boyd
Norman Corne
Ralph Robinson.

District Society Members:
One representative for every 50 members or part thereof to be elected by the following:
Brandon and District Medical Association
Central District Society
Southern District Society
Northern District Society
North of 53 District Society
North Western District.

The President and Recording Secretary are Manitoba representatives on the Steering Committee of the General Practitioners' section of the Canadian Medical Association. The First Vice-President and the Corresponding Secretary are the alternatives on this committee.
Standing Committees:

1. Public Relations, V. F. Bachynski, A. Wilson
2. Education and Scientific, L. Sigurdson, Chairman
3. Hospital, M. M. Brown, Chairman
4. Economics, P. H. McNulty, Chairman
5. Membership Attendance and Social, N. Corne, Chairman
6. Constitution and By-laws, W. F. Tisdale, Chairman
7. Nominating Committee, Past President and President.

The above chairmen will kindly submit names of other members selected to serve on the respective committees.

OBITUARY

Dr. Campbell Hamilton Monro

Dr. Campbell Hamilton Monro, who practised for many years in St. James, died on November 20, aged 80 years. His death removes a link with the early history of this country, as his great grandfather was Sir Alexander MacKenzie who discovered the river of that name and made the famous overland trip to the Pacific in 1793. Dr. Monro was also a direct descendant of the House of Clan Monro.

Born at Walthamstow, England, he was educated at Cliff College, then graduated in theology at Cambridge University. He came to Canada in 1898 as a missionary for the Presbyterian Church, served for two years on the Indian Reserve at Qu'Appelle, then ministered for twelve years to the new settlers at Ethelbert, mainly from the Ukraine. He came to Winnipeg to study medicine and graduated from Manitoba Medical College in 1913. From that time he practised at St. James in Greater Winnipeg until his death.

He is survived by his widow and three sons. Of a studious and retiring disposition, he was not widely known, but he was held in high esteem by his patients and friends.

Empire Medical Advisory Bureau

The British Medical Association has established in London an Empire Medical Advisory Bureau to assist medical visitors to Great Britain. The personnel of the Bureau's Advisory Commission, and Committee of Management, is sufficient indication of the aims of the Bureau, and the service that it places at the disposal of medical men and women planning to work overseas.

These services include:

(1) Postgraduate education — detailed information re facilities, courses of study necessary for higher qualification and where required, necessary contacts and introduction can be arranged.

(2) Accommodation — a register of suitable hotels and lodgings is maintained and every effort made to assist.

(3) Private hospitality — some members have notified the Bureau of their wish to entertain overseas visitors—usually for week-ends. It is hoped that this may be further developed.

(4) General information—re food and clothing rationing, petrol allowances, customs regulations.

Enquiries may be directed to the Medical Director, Dr. H. A. Sandiford, British Medical Association House, Tavistock Square, London, W.C.1. It is suggested that these be made as far as possible in advance of a contemplated visit to Great Britain.

EDITORIAL

J. C. Hossack, M.D., C.M. (Man.), Editor

The Benevolent Fund

Last month I had something to say about the Benevolent Fund. Since then all the members of the Winnipeg Medical Society have received a letter about it. But ill fortune does not confine itself to cities and the trustees of the Fund would, I believe, like to see country members eligible for its benefits. If the Fund could be brought under the auspices of the Association, rural as well as city practitioners would then be eligible, and it might be possible to increase the Fund from the coffers of the C.P. & S. where many thousands of dollars lie useless.

While the prime object of the Benevolent Fund is to assist doctors in need of help, it has another and perhaps, a greater usefulness; for its founders planned it to be a means of assisting the children of doctors. When death or disaster ends a doctor's days of usefulness, it not infrequently means that his children are deprived of an opportunity to train for the work they wish to do. We should see to it that no doctor's child is cheated of his chance in life. There are today children in whose welfare we should have more than a passing interest and towards whom we should consider it a moral obligation to stand in loco parentis.

NEW YEAR RESOLUTIONS

New Year Resolutions

What I have just written glides easily into what I am about to write for it concerns money and the C.P. & S. I suggest that the Members of Council of the C.P. & S. resolve to find some useful way for putting our idle dollars to work. They are, after all, our dollars and there are fifty or more thousands of them, all huddled within the dark seclusion of a bank vault where, almost sterile, each begets in the course of a year, an insignificant progeny of cents. Yet there are so many of them that each year sees more added to much, the slight withdrawals not diminishing the whole.

The time may come when we shall be sorry that we left this wealth untouched. How, do you think, would a Government regard it were State Medicine to come in force? Would they not look upon it as a windfall rightfully theirs? Today it is ours but there is no saying when it may cease to be ours, so closely is approaching the time when Socialized Medicine will be the order of the day. To the best of my knowledge the gathering riches of the College have at no time been very useful to the profession. Now, therefore, would seem to be the time to find a use for them.

The second resolution I have in mind is one that every doctor in the Province should make and carry out—the resolution to be a member of the Association. Our Association is a voluntary organization. Those who are its members give it strength but every doctor who is not a member diminishes that strength, for he prevents that unity which today, more than ever, is not merely desirable but is necessary.

Coming events cast their shadows before them. The shadow of State-controlled Medicine darkens the whole of this Continent. There is little doubt that this year will see a general election and much certainty that, should this happen, contending politicians will vie with each other in the disposal of our services. Such being the case would it not be wise for us to make a virtue of necessity and lead where we otherwise must follow?

No one can be opposed to seeing everyone enjoy the advantages of modern science. But those who know best how the public can best be served should have a large hand in formulating methods of medical care. There are three freedoms upon which we should insist. First, the freedom of everyone to have available all the benefits medical science can provide, without burdensome expense. Second, the freedom of every one to choose his own doctor. Third and not least the freedom of the medical profession from bureaucracy and the threat of being reduced to the status of Civil Servants. It would be wiser to advocate and advertise a plan of our own making than run the risk of having reluctantly to accept a scheme originated by laymen. Our colleagues in Great Britain are not particularly happy with the present state of affairs which is also not greatly to the liking of their patients. British friends write me that their private doctors who were formerly easy of access are now so swamped with work that seeing them is difficult. Moreover both doctors and patients are smothered in red tape. Indeed, as I gather it, if the red tape could be converted into food and clothing the British people would be the envy of the world.

Here, with every political party pledged to give Health Care, promises are likely to be extravagant but when elected a Government is in a position to do much as it chooses, and if it should choose to make free with our services we shall find few friends outside our own ranks. Therefore our ranks should be well filled and tight.

Medico-Historical

J. C. Hossack, M.D.

The Last Days of George III

(The death of George III on January 29, 1820, was an event of no political consequence, as for ten years he had been under a mental eclipse. He died at the age of 82 after reigning for sixty years. Here is the pathetic story of his last days).

All the world knows the story of his malady: all history presents no sadder figure than that of the old man, blind and deprived of reason, wandering through the rooms of his palace, addressing imaginary parliaments, reviewing fancied troops, holding ghostly Courts. I have seen his picture as it was taken at this time, hanging in the apartment of his daughter, the Landgravine of Hesse Hombourg—amidst books and Windsor furniture, and a hundred fond reminiscences of her English home. The poor old father is represented in a purple gown, his snowy beard falling over his breast—the star of his famous Order still idly shining on it. He was not only sightless: he became utterly deaf. All light, all reason, all sound of human voices, all the pleasures of this world of God, were taken from him. Some slight lucid moments he had; in one of which the Queen, desiring to see him, entered the room, and found him singing a hymn, and accompanying himself at the harpsichord. When he had finished he knelt down and prayed aloud for her, and then for his family, and then for the nation, concluding with a prayer for himself, that it might please God to avert his heavy calamity from him, but if not, to give him resignation to submit. He then burst into tears, and his reason again fled.

What preacher need moralise on this story; what words save the simplest are requisite to tell it? It is too terrible for tears. The thought of such a misery smites me down in submission before the Ruler of kings and men, the Monarch Supreme over empires and republics, the inscrutable Dispenser of life, death, happiness, victory. "O, brothers," I said to those who heard me first in America—"O brothers! speaking the same dear mother-tongue—O comrades! enemies no more, let us take a mournful hand together as we stand by this Royal corpse, and call a truce to battle! Low he lies, to whom the proudest used to kneel once, and who was cast lower than the poorest: dead, whom millions prayed for in vain. Driven off his throne; buffeted by rude hands; with his children in revolt; the darling of his old age killed before him untimely:

"Vex not his ghost—oh! let him pass—he hates him
That would upon the rack of his tough world
Stretch him out longer!"

Hush! Strife and Quarrel, over the solemn grave! Sound, trumpets, a mournful march! Fall, dark curtain, upon his pageant, his pride, his grief, his awful tragedy!

Wm. Thackeray.
"The Four Georges."

The Prayer of Maimonides

Daily Prayer of a Physician before Visiting a Sick Man

I begin once more my daily work. Be Thou with me, Almighty Father of Mercy, in all my efforts to heal the sick. For without Thee, man is but a helpless creature. Grant that I may be filled with love for my art and for my fellow-man. May the thirst for gain and the desire for fame be far from my heart. For these are the enemies of Pity and the ministers of Hate. Grant that I may be able to devote myself, body and soul, to Thy children who suffer from pain. Preserve my strength that I may be able to restore the strength of the rich and the poor, the good and the bad, the friend and the foe. Let me see in the sufferer the man alone. When wiser men teach me let me be humble to learn; for the mind of man is so puny, and the art of healing so vast. But when fools are ready to advise me or to find fault with me, let me not listen to their folly. Let me be intent upon one thing, O Father of Mercy, to be always merciful to Thy suffering children.

May there never arise in me the notion that I know enough, but give me strength and leisure and zeal to enlarge my knowledge. Our work is great, and the mind of man presses forward forever. Thou hast chosen me in thy grace, to watch over the life and death of Thy creatures. I am about to fulfill my duties. Guide me in this immense work so that it may be of avail.

Osler's Ideals

I have had three personal ideals. First to do the day's work well and not to worry about tomorrow. The second ideal has been to act the Golden Rule, so far as in me lay, toward my professional brethren and toward the patients entrusted to my care. And the third has been to cultivate such a spirit of equanimity as would enable me to bear success with humility, the affection of my friends without pride, and to be ready when the day of sorrow or grief came, to meet it with courage befitting a man.

ARTICLES

Canada's National Health Program*

The Doctor's Place in Federal Health Plans

The new National Health Programme has been acclaimed in all parts of Canada. Provincial governments, Canadian health leaders, the average Canadian citizen—all recognize in this programme an historic advance towards good health. Abroad, Canada's prestige—already high in the fields of health and social welfare—is higher because of this action. Only two weeks ago—in recognition of Canada's new health plan—the American Public Health Association recorded this fine tribute:

"Resolved, that the American Public Health Association extends its hearty congratulations to the Government and the people of Canada for a step which makes the year 1948 memorable in the annals of public health on this continent."

Tonight, at this Annual Meeting of the Royal College of Physicians and Surgeons of Canada, I take the opportunity of making the first progress report on this plan. No one could have a greater stake in health than you who have crowned years of medical training with intensive instruction before taking positions of special trust in the life of your country and community. As leaders in the medical profession you must always be aware of every important health development and active in its support.

Canada's health services rest firmly on the foundations that you have laid. Government action cannot supplant your enthusiasm or your effectiveness. The first essential of any government health programme is to strengthen the hands of those most immediately responsible for health leadership. My talk tonight is about our tremendously significant federal health plan, but, through each of its members, the Royal College represents more than 3,100 important individual health programmes.

The first point in my progress report is to note that the new national plan does not in any way lessen the role or lighten the responsibilities of the individual doctor, dentist, nurse or health worker. In bringing better health to its citizens, a government must look to your profession for leadership. Without your confidence and collaboration, no health programme could be fully successful. I can assure you that no action taken by the present Government under this or under any other programme to improve health services in Canada will stifle or destroy the liberty of the individual doctor. All of us in our own respective fields must, of course, recognize our social responsibilities in the service of society, whether we be public servants, or professional persons in the larger areas of service to humanity. We must adjust our disciplines, our patterns of performance in recognition of this growing sense of social responsibility. Yet this must be accomplished without restriction of our liberty and freedom. Health advances take their inspiration from the imagination, industry and integrity of each member of your profession. Regimentation of the doctor would be ruinous to health progress. In any sensible health plan the doctor holds a responsible position. Will we not want to see that doctors should continue to be free to serve their patients —not that they should become mere servants of the state.

The Provinces and the Federal Programme

The second point in my progress report is that the National Health Programme does not lessen the momentum of provincial health services. Our programme for health must start with the individual citizen. In taking account of all his working and living conditions, health planning can best be done on a local or regional basis. Except for long established federal health services—such as the inspection of food and drugs, quarantine, and health care for sick mariners and Indians—it would be folly to attempt to administer from Ottawa all Canada's far-flung health activities.

While health is a national concern it is primarily a provincial responsibility. And rightly so. Our health services are soundly established in each province; as they are based in large part on local need and related to local conditions they should be administered locally and provincially. This is as sound as it is sensible. Health administration in Canada is a vastly complex inter-locking system of the multiple activities of voluntary health agencies and of the municipal, provincial and federal governments.

If, in trying for an illusionary efficiency, we pressed for an overall central administration, we could only confuse the health picture. Such centralization would badly serve the Canadian citizen. Our federal plan does not disturb the proper Dominion-Provincial balance of health services. It does not attempt to do ponderously for the provinces what they can do efficiently for themselves. There are, however, important health duties incumbent on every government in Canada. Through the Department that I have the honour to administer, the Federal Government has a clear

*An address by the Hon. Paul Martin, Minister of National Health and Welfare, to the Annual Dinner of the Royal College of Physicians and Surgeons of Canada, at the Chateau Laurier Hotel, Ottawa, Saturday, November 27th, 1948.

responsibility—apart from its own health services—to co-operate with provincial authorities in the co-ordination of efforts to improve the public health of Canada. In recognition and in discharge of this responsibility, the National Health Programme was inaugurated.

The Programme in Outline

Before going into detail of results achieved, I shall review the major objectives of this programme and the provisions made to reach them:

1. **Comprehensive and searching surveys are to be made of the Canadian health scene.** Each province is given financial assistance to make a close study of its health services and of its hospital needs, and to formulate its health plans for the future. For this purpose, federal grants totalling $625,000 have been provided.

2. **Provincial health services are to be strengthened and extended.** New developments are to be encouraged. There will be concerted campaigns to widen the range of preventive medicine and to cure disease. Federal grants starting at $16,500,000 and rising to $22,000,000 will be available each year for public health research, for public health projects, to train professional health workers, to help crippled children, to fight venereal disease, to control tuberculosis and cancer, and to manage mental illness.

3. **Great increases in hospital accommodation are to be encouraged by annual grants to the provinces, totalling $13,000,000 a year.** In order to provide a powerful incentive towards building 40,000 badly needed hospital beds, the Government will pay up to $65,000,000 over a period of five years, at the rate of either $1,000 or $1,500 for each bed—on condition that the provinces match these grants.

In recent years the Federal Government has widely surveyed the Canadian health scene. Everywhere it found evidence of real achievement. The provinces have been doing admirable work, increasing their health services and hospital facilities, but it was seen that—if the pace of their health progress was to be accelerated and neglected areas cared for—federal financial aid was essential.

Progress Report on National Health

It is only four months since this programme got underway, but already there is every evidence that it is succeeding admirably in its main purpose—to raise the entire level of health activity in Canada. From every province plans and projects are coming into Ottawa. During the past ten days, for example, the number of such requests has varied from 10 to 37 a day. It is an inspiration to receive, from all parts of Canada, details of projects that reflect the imagination and initiative of provincial health departments, eager to take full advantage of this federal assistance to expand their present services and to strike out in new directions.

From the projects coming to us it is evident that each province is carefully reviewing its health operations, while searching out and training personnel for the new activities planned. New equipment is being sought, administrative machinery is being expanded; weak points in provincial programmes are being searched out and corrected. Neglected territory is being brought within the orbit of these new health plans.

It takes time to assess and strengthen provincial programmes and this might prevent full and immediate use of the monies available. When I asked Parliament to approve the whole amount for this fiscal year I did so for a special purpose—to indicate how anxious the Government was to see its grants fully utilized this year if possible. This year's allotment of $30,000,000 is our target figure—the amount of money that we believe should be expended to bring our health services up to desirable levels. While all of the health survey grant and much of the national health grant monies will be expended in this fiscal year, it seems possible that some provinces will be unable to use all of their hospital construction grants. So, to achieve the results desired, the Government will carry over the unexpended portion of the hospital construction grants to make a total of $65,000,000 available by 1953 to increase hospital accommodation.

(a) Health Survey Grants

First of all, it is encouraging to see the energy that is being put into the provincial health surveys. **Planning shows the way to health progress.** At a three-day conference held this week in Ottawa, the directors of all these survey groups showed a determination to get at the facts about their health services and hospital facilities and to search out remediable conditions. They were assisted by the newly-formed National Consultative Committee, made up of representatives of the principal national professional associations. In every province, health services and hospital accommodation are being reassessed and related to present and future needs, especially in view of the federal support now at hand. The National Health Programme was based on the best information and the best advice available but the provincial health surveys will provide an additional mass of accurate and useful information from which further health advances can be more easily planned.

(b) Hospital Construction Grants

The necessity of completing preliminary surveys of their needs has, until recently, prevented some of the provinces from putting forward their programmes for hospital construction grants, but Nova Scotia, New Brunswick and Manitoba have made important requests for federal aid. These are now under consideration. I am expecting submissions from Ontario and Quebec in a few days. In spite of the difficulties that delay construction work of any sort in Canada, great importance is attached to helping the provinces increase their hospital accommodation by 40,000 beds in the next five years. We will encourage every province that finds it impossible to utilize its full grant in the first year to expand its building programme in subsequent years to use the available federal grant—that can be carried over each year — in order to build the accommodation so urgently needed.

(c) National Health Grants

There can be little doubt that even in the few months that have passed notable advances have been initiated through the National Health Grants. In reviewing each grant I shall attempt to illustrate by typical examples—chosen from scores of projects—the sort of activities that are now under way.

(1) To Underwrite Research in Public Health

In the present year, $100,000 has been set aside for research in public health in addition to the funds provided through the National Research Council. Projects are shaping up to make good use of this money. As research facilities and trained personnel are augmented, this grant will rise to $500,000 annually. The need for research is fully recognized throughout the federal programme, for research is an essential part of any forward-looking health plan.

(2) To Train Professional Health Workers

As provincial programmes expand, personnel must be trained to staff them. For this purpose, there is, in addition to training provided under other grants, an annual federal grant of $500,000 a year. Already, in several provinces, projects have been approved that will train more than 250 people in health work. These cover a great variety of avocations—from laboratory technicians to medical specialists. Sanitary inspectors, public health engineers, public health nurses, dentists, doctors, veterinarians—all are included in current projects.

(3) Better Care for Crippled Children

In Canada there are perhaps 50,000 crippled children. As soon as new programmes can be developed, the federal grant of $500,000 annually can be translated into preventive work to discover conditions that—if neglected—would lead to crippling. More adequate treatment will become available for those already crippled, and rehabilitation services will be provided on a larger scale.

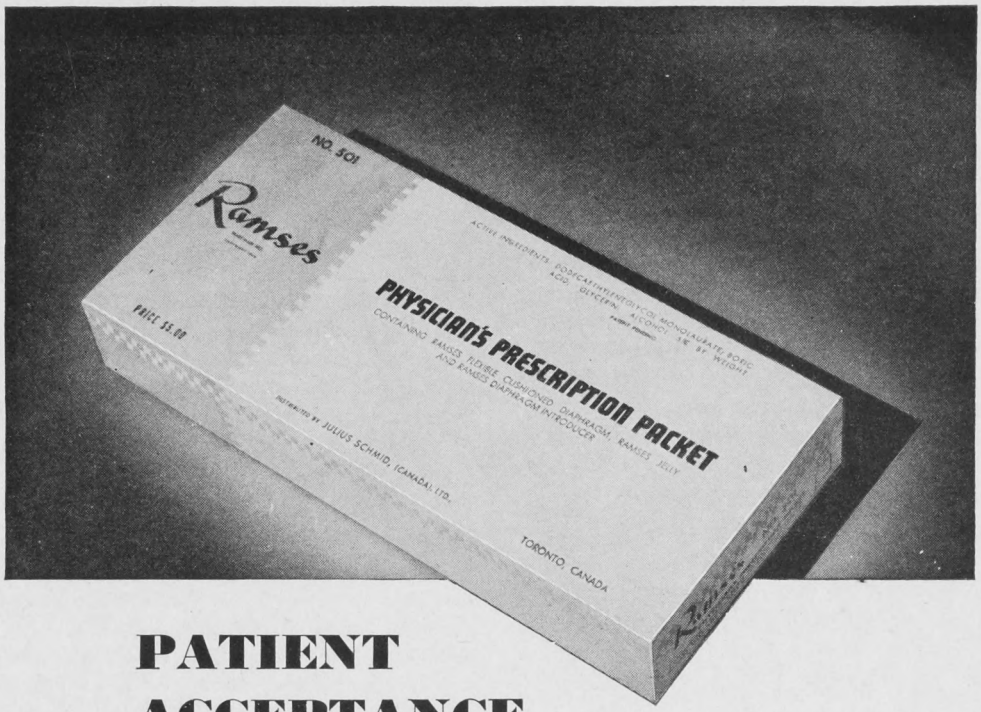
(4) More Active Control of Venereal Disease

By more than doubling the existing federal grant for the control of venereal disease, the Federal Government has made increased control possible. Established programmes for education, for the provision of drugs and for follow-up service are being continued. Part of the increased grant is being used in Manitoba and British Columbia for penicillin. In Prince Edward Island, blood tests will be made of every person admitted to hospital. In Alberta, a new clinic is being established at Lethbridge, and a mobile clinic is being sent into the northern part of the province. In general, this increased grant is widening the reach of skilled treatment and extending to clinics and private physicians expert instruction in new treatment techniques.

(5) Increased Efforts to Eradicate Tuberculosis

The death rate for tuberculosis in Canada has declined strikingly, but this disease still represents a major national health problem. More than 4,000,000 patient-days a year are expended in tuberculosis institutions alone. As its causes are known and as cures are possible in most instances when it is discovered in time, the federal grant of from $3,000,000 to $4,000,000 a year should yield impressive results in the fight against tuberculosis. In the past 20 years the tuberculosis mortality rate has been reduced by 46%. Let me spell out this impressive story: 1927, 68 deaths for each 100,000 of our population; 1932, 56; 1937, 49.5; 1942, 42.5; 1947, 36.8. This is the pattern of progress. In the next generation we should almost completely banish pulmonary tuberculosis from this country.

Projects that have been approved under the Health Plan include the distribution of streptomycin in five provinces. New equipment is to be provided in several provinces in very considerable amounts. Ontario hospitals will be equipped and assisted to give routine chest X-rays to all admitted, and Ontario's chest clinics are being expanded to cover its entire population. In British Columbia, a pool of X-ray survey equipment is being built up for the use of all general hospitals, and eleven new tuberculosis control units are being formed. In Alberta, free sanitorium treatment will be made available for non-pulmonary types of tuberculosis, making treatment for any form of this disease free in that province. New Brunswick has come forward with a variety of projects that fully utilize its grant of $142,000 this year for tuberculosis control. These are some—but by no means all—of the fundamental and far-reaching steps being taken as a result of the Fed-



PATIENT ACCEPTANCE

Physicians can prescribe this complete unit with the confidence that it will prove acceptable to the patient while providing assured protection.

Evidence obtained from clinicians establishes that patients continue to use the technique embodied in the "RAMSES"* Prescription Packet No. 501 because of its effective and comfortable employment.

All "RAMSES" Gynecological Products are accepted by the Council on Pharmacy and Chemistry of the American Medical Association. They are available through recognized pharmacies.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

*The word "RAMSES" is a registered trademark.

JULIUS SCHMID (Canada) Ltd.

31 Teraulay St. • Toronto, Ont.

eral Government's Health Plan. Now, to continue—

(6) Acceleration of Campaigns Against Cancer

In contrast with tuberculosis, deaths from cancer have shown a marked increase in recent years —although this probably is partly due to improved diagnosis and to the aging of our population. Cancer is curable in some degree but great discoveries in cancer research must be made before this disease can properly be brought under control. Important steps have been taken to accelerate our campaign against cancer. Nearly two years ago, I met with representative leaders in the medical and other fields to assist in forming the National Cancer Institute of Canada, which has already launched 43 significant research projects. I expect all of the provinces will agree to assign a percentage of their cancer control grant to support research under the Institute. Our hope is that if Canada — in common with other countries — puts enough energy into the study of cancer, in good time more of its secrets can be discovered.

Large-scale projects are now being put forward to utilize the annual $3,500,000 cancer control grant. Prince Edward Island has received approval for the organization and operation of two diagnostic cancer clinics. A doctor is to be given special training before becoming director of a cancer control division. Free cancer laboratory services are to be made available. New Brunswick is purchasing cancer therapy equipment for five new cancer treatment centres, and also purchasing a supply of radium. It is setting up six cancer diagnostic clinics. There are important cancer control projects for Manitoba and Quebec. Other provinces are preparing projects in cancer control under this national health plan that will have very far reaching effects.

(7) Management of Mental Illness

Another major health problem is the prevalence of mental illness. At the beginning of January, 1948, there were 54,667 patients in mental institutions in Canada—nearly half the total number of people in all Canadian hospitals. A federal grant rising in stages from $4,000,000 to $7,000,000 a year has been provided to fight this disease—especially by preventive measures. This federal expenditure should bring about important changes. Expert mental health care should extend beyond the mental hospital to become a living part of medical care in the general hospital and more easily available to the average citizen in his own community. For example, the federal plan makes possible a travelling mental health clinic in Prince Edward Island as part of a proposed mental health division. In Ontario, a large-scale programme is underway at the University of Toronto to give special training in mental health to psychiatrists, physicians, psychologists, psychiatric social workers, nurses, and teachers in psychiatry and public health. In Manitoba, extensive work in occupational therapy is being developed in mental hospitals. In Saskatchewan, three teacher-psychologists are to be trained to act as liaison officers between mental health clinics, the school and the community. Part of this training is made possible by the Professional Training Grant.

The mental health grant is bringing more expert psychiatric knowledge to the patients in mental hospitals. Hospital staffs are being strengthened and given additional training. The equipment and facilities of mental hospitals are being improved. Because of this federal aid, more attention can now be given to prevention in mental illness work and to treatment and rehabilitation.

(8) Extension of Activities in Public Health

In the present year, $4,400,000 is being provided for provincial work in general public health. This grant will increase until it reaches $6,500,000 a year and then continue on the basis of 50 cents per capita yearly. This grant is helping to expand existing public health facilities, and to put much greater emphasis on preventive medicine. For instance in Prince Edward Island, branch laboratory services are being provided in the provincial and general hospitals. In New Brunswick, an integrated programme of public health education and preventive dental hygiene is provided for. Saskatchewan has also established a division of dental hygiene. Bacteriological services in Regina are being improved and extended and the city's health services strengthened. In Alberta, a new health unit is to be set up to serve Drumheller and district.

British Columbia has already utilized 60% of its public health grant of $365,000. Public health education is being extended. A division of preventive dentistry is being established. Special equipment is being provided to extend the facilities and services of local health units. To build new units, to expand the staff of those already in existence, and to expand public health nursing services, 15 additional nurses and 14 sanitary inspectors will be added to health unit personnel in British Columbia.

V. The Pattern of Progress

These examples do not yet indicate any completely coherent pattern in the advances made possible in provincial health fields by the National Health Programme. They are representative of some of the first proposals that have been received and approved. From a study of all these projects and from a review of the 100 or so that came in during this week, I can say that all across Canada health activity is being greatly stimulated by this federal programme. It builds on good foundations, for Canada's health levels are among the highest

in the world. In the past twenty years our life expectancy has continued to advance. The general death rate is down by 17%. Infant mortality is down by 44%. Maternal mortality is down by 42%. These are milestones in Canada's health history.

In some major diseases—notably, tuberculosis—there has been marked improvement; in others—particularly cancer—the reported death rate has considerably increased. In any event, while great progress has been made in controlling childhood diseases, it is clear that the incidence of many of the other diseases is still far too high. It is also clear that it is now within our power because of the federal grants to broaden greatly the scope of preventive medicine and to support vigorously provincial campaigns against disease.

Ill-health makes inroads on human effectiveness and human happiness. This is a matter of concern both to the individual and to the nation. The National Health Programme, by adding $30,000,000 annually to the large amounts of money now being spent by all governments in Canada, is proof of the Federal Government's intention to help free as many people as possible from servitude to illness. There is no better justification for the expenditure of public funds than this great plan to assist the provinces in breaking down the barriers to good health, in finding out the cause and the cure of the killers and cripplers, and in strengthening the defences against all major and minor ailments that hinder human beings from full activity of body and mind.

VI. Importance of Preventive Medicine

I have made this broad survey of typical projects to show what has been accomplished thus far under the federal plan and to keep you advised of the progress that is being made. I have not attempted to relate these new developments to your particular interests, although many of the projects outlined will mean much to you personally since you will help to bring them to fulfilment.

The fellows of the Royal College of Physicians and Surgeons, who lead in specialized fields of medicine will, I know, give intelligent guidance to medical training to keep it abreast of modern developments and current need. I hope that the new directions and new opportunities given to health action in Canada by this programme will receive full consideration in medical teaching. I believe that the general practitioner—the "family doctor"—would like to play a greater part in public health work. If so, the first encouragement of this interest would be to put more emphasis in medical instruction on preventive medicine and public health generally.

It should be your concern, as leaders in Canadian medicine, above all else to guard against any action—whether it be by private agencies or by government—that would lower the standard of medical practice. All our health programmes would fail if the intangibles of medical prograss—the quality of medical training, the doctor's instinct for selfless service—should in any degree be allowed to deteriorate.

For those who, like myself, serve this nation in a public capacity, there is a clear duty to see that the nation's health receives the attention and the financial support it deserves. For everyone who, like the fellows of this college, serves the cause of better health, there is an equally heavy responsibility to support each progressive movement to bring health services to all Canadians who need them—regardless of their ability to pay.

Behind our thinking in setting up the National Health Programme was the conviction that the energy our people had shown in war could find equally fruitful expression in peace through efforts such as this to widen for every citizen the opportunities for good health. Access to good health is a fundamental human right. And it is a right that every government must guard. When it became evident that the sturdy provincial defences against disease required reinforcement to protect the health of Canadians, the Federal Government took determined action in the manner I have described.

Time, I am convinced, and the furtherance of our freedom from disease will amply justify the bold and generous outpouring of this nation's resources in the cause of health through voluntary agencies, municipal and provincial governments, and through this far-reaching Federal Programme.

This programme represents, I believe, an important milestone in our attitude towards health care in this country. It emphasizes that this is the era of preventive medicine. I look forward to increased co-operation and unity of outlook between all who serve the cause of health, for all have a common objective—to achieve better levels of health for every Canadian.

Can convalescence be hastened?

You have seen your patient successfully through a serious illness, accident, or surgery. The question now is "How can I shorten the period of convalescence?"

During the acute period the demand for vitamin B factors increases greatly and dietary intake is often limited. The reserve of these important factors is thus quickly lowered to a sub-optimum level.

Most patients can be expected to convalesce more rapidly if given adequate amounts of a complete, well-balanced and potent preparation of the Vitamin B-Complex.

B·PLEX

admirably meets the need . . .

available in Elixir, Capsule and Injection form.

Wyeth

Registered Trade Mark

SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

So, by now the festivities are over, and everyone settled down to nursing the headaches, financial and otherwise, of a New Year—1949.

♦

Welcome home, early in November, to Dr. and Mrs. R. E. Beamish. Met at the train by your Mrs. Winchell and even then not in the Christmas number of the Review—Tut! Tut!! Congratulations, Bob, on your M.R.C.P. (London); M.R.C.P. (Edinburgh), in Cardiology. Post-graduate work under the Auspices of the Suffield Foundation in the Br. P.G. School, the National Hospital, Queen's Square and National Heart Hospital, London, also the Universities of Liverpool, Manchester, Sheffield, Newcastle, Edinburgh and Glasgow; followed by pure fun (?) in France, Switzerland, Northern Italy and home. How the boys get around!

♦

Congratulations also to Drs. A. C. Abbott, M. R. MacCharles, F. G. McGuinness and S. S. Peikoff in being our Manitoba Initiates into the American College of Surgeons.

♦

R. A. MacPherson reports a grand scientific session, beautiful weather and marvelous entertainment at the Radiological Society of North America in San Francisco. Nice memories for our present blizzard. Chuck Walton also had good scientific and social fun at the meeting of the American Academy of Allergy in Atlantic City.

♦

So we are "Feudin' and Fightin' " again! Thank you 401 Boyd Building for correcting my English! Perhaps you would like to take time to do the proof reading? Heavens knows I can't—or should I be corrected and say I cannot?

♦

What a happy grand picture of our old friends Lt.-Col. J. N. B. Crawford and Maude receiving that well deserved insignia of the M.O.B.E. from His Excellency, Viscount Alexander.

♦

Dr. and Mrs. Fred Walsh announce the birth of Philip McDonald on December 9th, 1948. More boys.

Congratulations to Norman Sloan on being awarded the second term Research Fellowship at Montreal Neurological. What about an Xmas drink on it, Norm?

♦

Dr. and Mrs. A. G. Henderson, home from the Congo, must find our winter a change, but it must also be a peaceful relief to be back home after all their varied experiences as prisoners of war and missionary work. Happy holidays to them.

♦

Birthday congratulations to Dr. J. P. Howden, Norwood, born at Perth, Ont., December 5th, 1879.

♦

Dr. Donalda Huggins is back, looking very happy and perky from attending the First Post-graduate Reunion of Anaesthesiologists at Hardford where she also attended the official opening of the new hospital. From Hardford she went on to New York to the Sectional Meeting of Anaesthesiologists.

♦

Dr. and Mrs. P. K. Tisdale announce the arrival of Robert William on December 13th, 1948.

♦

Birthday congratulations to Dr. H. M. Speechly, born at Cochin, South India, 1866.

♦

Apologies to Ben Lyons for wishing his F.R.C.P. on Ruvin—After all Ruv and I did work together in the army, so I, of course, thought he was the important one.

♦

The examinations for Fellowship in the Royal College of Surgeons (Can.) were held in Montreal in November. Dr. C. W. Burns was invited to act as one of the examiners in General Surgery. Some forty-five candidates from various centres throughout Canada took examinations in General Surgery.

♦

Among Manitobans who attended the Annual Scientific Meeting and Convocation of the Royal College of Surgeons in Ottawa, Nov. 26th and 27th were: Dean A. T. Mathers, Dr. M. R. MacCharles, Dr. Gordon S. Fahrni and Dr. C. W. Burns.

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1948 Oct. 31 to Nov. 27,'48	1948 Oct. 3 to Oct. 30,'48	1947 Nov. 2 to Nov. 29,'47	1947 Oct. 5 to Nov. 1,'47	TOTALS Dec. 28,'47 to Nov. 27,'48	TOTALS Dec. 29,'46 to Nov. 29,'47
Anterior Poliomyelitis	11	19	8	23	129	594
Chickenpox	331	165	207	123	2585	1244
Diphtheria	7	13	3	2	39	74
Diphtheria Carriers	1	4	3	0	10	19
Dysentery—Amoebic	0	0	0	0	0	1
Dysentery—Bacillary	1	0	0	0	12	7
Erysipelas	6	1	2	2	34	39
Encephalitis	0	0	0	3	4	81
Influenza	0	6	3	3	139	158
Measles	210	71	218	73	1114	6908
Measles—German	0	0	1	0	34	33
Meningococcal Meningitis	2	0	1	0	15	15
Mumps	188	131	96	126	1820	1447
Ophthalmia Neonatorum	0	0	0	0	0	1
Pneumonia—Lobar	6	4	4	7	137	177
Puerperal Fever	0	0	2	1	1	6
Scarlet Fever	26	19	46	16	220	220
Septic Sore Throat	0	0	0	0	21	14
Smallpox	0	0	0	0	0	0
Tetanus	1	1	0	0	6	5
Trachoma	0	0	0	0	1	2
Tuberculosis	88	85	1	97	1219	1541
Typhoid Fever	0	0	2	0	9	9
Typhoid Paratyphoid	0	0	0	0	2	0
Typhoid Carriers	0	2	0	0	2	1
Undulant Fever	0	1	0	0	12	7
Whooping Cough	12	11	124	103	289	1209
Gonorrhoea	83	97	119	157	1374	1828
Syphilis	24	34	37	53	438	548
Diarrhoea and Enteritis, under 1 yr.	12	10	6	5	160	158

Four-Week Period October 31st to November 27th, 1948

DISEASES (White Cases Only) *Approximate population.	*743,000 Manitoba	*906,000 Saskatchewan	*3,825,000 Ontario	Minnesota *2,962,000
Anterior Poliomyelitis	11	4	31	174
Chickenpox	331	463	1652	....
Diarrhoea and Enteritis	12	....	....	....
Diphtheria	7	3	12	8
Diphtheria Carrier	1	....	....	....
Dysentery, Bacillary	1	....	....	3
Erysipelas	6	7	3	....
Influenza	10	67	21	1
Measles	210	128	412	17
Infectious Jaundice	....	....	1	....
Meningococcal Meningitis	2	15	3	4
Mumps	188	81	588	....
Pneumonia Lobar	6	....	....	....
Scarlet Fever	26	31	151	162
Tetanus	1	....	....	....
Tuberculosis	88	41	146	267
Typhoid Fever	....	3	1	3
Undulant Fever	....	....	4	14
Whooping Cough	12	13	93	6
Gonorrhoea	83	....	321	....
Syphilis	24	....	172	....

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period November 3 to November 30, 1948

Urban—Cancer, 52; Diphtheria, 2; Influenza, 2; Pneumonia Lobar (108, 107, 109), 4; Pneumonia (other forms), 8; Syphilis, 2; Tuberculosis, 6; Diarrhoea and Enteritis under 2 years), 1. Other deaths under 1 year, 15. Other deaths over 1 year, 196. Stillbirths, 8. Total, 219.

Rural—Cancer, 31; Influenza, 3; Lethargic Encephalitis, 1; Measles, 5; Pneumonia, Lobar (108, 107, 109), 2; Pneumonia (other forms), 3; Tuberculosis, 6; Whooping Cough, 1; Diarrhoea and Enteritis (under 2 years), 1; Cerebral Meningitis, 1; Other diseases due to spirochetes, 1. Other deaths under 1 year, 17. Other deaths over 1 year, 146. Stillbirths, 9. Total, 172.

Indians—Tuberculosis, 4. Other deaths under 1 year, 1. Other deaths over 1 year, 3. Stillbirths, 1. Total, 5.

♦

Chickenpox, Measles and **Mumps** have all shown a marked increase in this four-week period but this is only to be expected as these very communicable diseases occur in cycles whenever there is a group of non-immunes present.

Dyphtheria, with twenty new cases in the past eight weeks has shown quite a spurt. Even so, our total for the year will be the lowest in Manitoba history. Keep up the good work of immunizing!

Syphilis and **Gonorrhoea** are both showing a definite decrease in cases this year. No doubt a large part of the credit for this decrease is due to penicillin treatment. Early treatment renders these cases non-fectious and prevents further spread of infection.